

OFFICIAL TRANSCRIPT OF PROCEEDINGS

Agency: U.S. Nuclear Regulatory Commission
Incident Investigation Team

Title: Investigative Interview of:
Rob Temps
(Closed)

Docket No.

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ADDENDUM

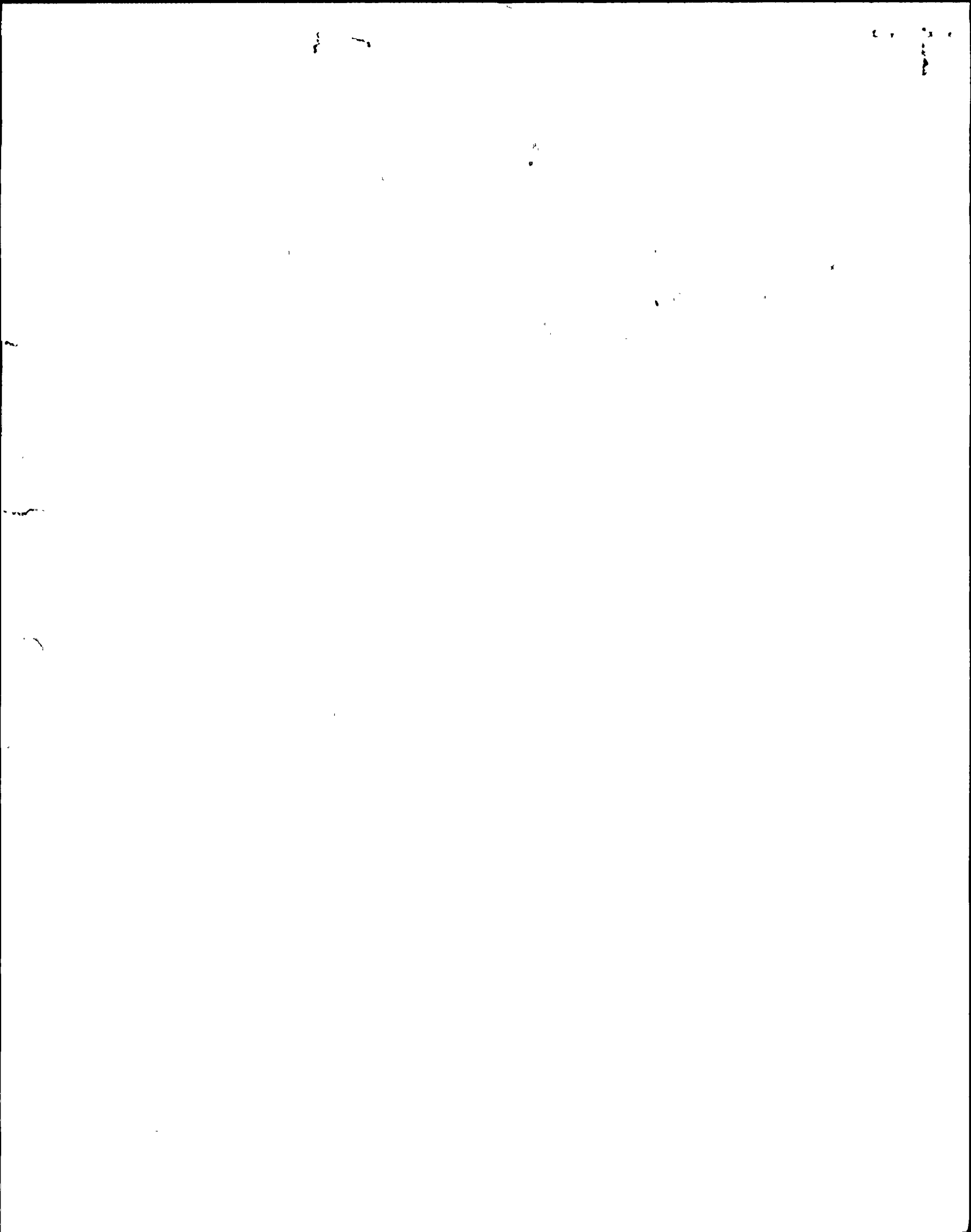
Page Line Correction and Reason for Correction

No corrections or clarifications made.

Robert Temp

Robert Temp 10/1/91

Date _____ Signature _____



UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION
INCIDENT INVESTIGATION TEAM

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Interview of :
ROB TEMPS :
(Closed) :

Conference Room B
Administration Building
Nine Mile Point Nuclear
Power Plant, Unit Two
Lake Road
Scriba, New York 13093
Tuesday, August 27, 1991

The interview commenced, pursuant to notice,
at 10:20 a.m.

PRESENT FOR THE IIT:
Walton Jensen, NRC
Frank Ashe, NRC

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P R O C E E D I N G S

[10:20 a.m.]

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2
3 MR. JENSEN: This is August 27, 1991, about 10:20
4 in the morning. This interview is part of the NRC incident
5 investigation of the Nine Mile Unit Two loss of control
6 power and reactor trip of August 13, 1991. I am Walton
7 Jensen from NRC headquarters.

8 MR. ASHE: My name is Frank Ashe, and I'm also a
9 member of the IIT team investigating the August 13 event
10 which occurred at Nine Mile Point Unit Two. I'm an
11 electrical engineer, and I'm from the Office of Nuclear
12 Reactor Regulation.

13 MR. TEMPS: My name is Rob Temps. I'm the Unit
14 Two resident inspector. I've been at Unit Two for
15 approximately two months, assigned duties there. Prior to
16 that I was the Unit One resident inspector for three years.

17 Prior to being assigned up here in June of '88 I
18 was in Region I as a PWR examiner. I did that function for
19 two years, and part of that job as an examiner was to assess
20 operators' performance for granting NRC operating licenses,
21 so I have a fair amount of background in assessing operator
22 performance, in plant and in simulators.

23 Prior to coming to work for the NRC in Region I, I
24 was a shift test engineer at the Norfolk Naval Shipyard. I
25 did that function for six years and worked on several



1 different naval reactor plant systems and designs.

2 MR. JENSEN: Okay, Rob.

3 On August 13, could you tell us how you found out
4 that there was a problem at Unit Two and something about how
5 you progressed to the control room and what you saw when you
6 got there?

7 MR. TEMPS: All right.

8 Just some background, prior to getting the phone
9 call informing me of the event that was ongoing: We had two
10 specialist inspections going on the week of the event. We
11 had two people that were up here to do a security
12 inspection, and there was one individual, by the name of Joe
13 Furia, who was up here to do a periodic radiological
14 inspection.

15 Joe likes to come in very early in the mornings to
16 get on site and start his inspection. He arrived on site
17 about 5 to 6 that morning, and, as he was walking out of the
18 NRC trailer, over towards Unit Two, he heard an announcement
19 on the site page system that there was a site area emergency
20 in effect on loss of annunciators and plant scram.

21 Joe went back to our trailer and started trying to
22 get hold of the resident inspectors. He got to my phone,
23 and fortunately everybody's names are programmed in on the
24 phone by first name, so he tried the Unit One resident first
25 and wasn't able to get hold of him, because his number just



1 changed and I hadn't programmed that in yet, but he got hold
2 of me at about 5 after 6 in the morning, apologized for
3 waking me up so early, and basically repeated back that Unit
4 Two was in a site area emergency for the loss of
5 annunciators and a reactor scram.

6 I verified with him that that wasn't a drill, that
7 that had in fact been declared. He mentioned he had tried
8 to call the other resident, so I gave him the phone number
9 there, to call that resident, and I told him I'd be in as
10 soon as I could and that he should just wait at the trailer,
11 and I would get up with him when I got on site.

12 I basically got dressed as fast as I could, got in
13 the truck, and drove in here, as prudently as possible, but
14 a little faster than normal. I recall that I got to the
15 gate -- it was probably around 6:30 in the morning -- and I
16 knew the event was for real because, number one, the cooling
17 tower wasn't putting out the normal vapor trail that does
18 and, secondly, there were about 20 people lined up outside
19 the Unit One security building, because they had restricted
20 access to the site at that time. So I knew that it was
21 basically for real, that something was going on.

22 I parked and came into security, and they know who
23 their residents are, so they let me through, and I got my
24 badge. I went over to the trailer and got together with Joe
25 Furia and requested that he go up to the control room with



1 me, because I told him we would take a phone in the back,
2 probably the reactor analyst's phone, which is in a back
3 corner, that we would be co-opting that and setting up our
4 own direct line to headquarters. He went up to be the phone
5 talker with me.

6 As we were walking over to Unit Two, I could hear
7 the announcement that they were starting up one of the
8 condensate booster pumps, so I figured they were probably in
9 the process of establishing some sort of feed path with the
10 feed system. I probably got up to the control room -- I
11 thought it was around 6:30, but from looking at sequence of
12 events it was probably between 6:30 and 6:40.

13 When I got into the control room, I walked into
14 the SS's office and just observed out the windows what was
15 going on in the control room. You could see at the panels
16 themselves there were probably between eight and ten
17 operators, doing various functions. They appeared mostly to
18 be working in groups of two at the different panels. I
19 verified that the SSS and his assistant were at the panels
20 where the EOPs are laid out, observed that they were giving
21 direction and that they were in the EOPs, and verified --
22 there were two individuals on the phones, one guy on the red
23 phone, talking with headquarters on the ENS line, and
24 another individual making, I guess, local calls and what
25 have you, local notifications.



1 I just watched what was going on for about four or
2 five minutes, and the main event of interest going on at
3 that time was getting the condensate booster pump on line
4 and getting a feed path established back to the reactor.
5 From looking at the plant parameters, I knew that the plant
6 had already cooled down and depressurized a significant
7 amount, which you expect after a trip. I knew they had a
8 cool-down path available; bypass valves were operable; they
9 still have vacuum in the condenser, so they had a means to
10 get rid of decay heat.

11 As I remember, water level was down around 137
12 inches and slowly decreasing, maybe an inch a minute. There
13 was communication between the individuals at the panel with
14 the feed control back to the SS as far as what was happening
15 with water level.

16 About 6:53 they got down to about 133 inches, at
17 which time they were feeding in at about 500 gallons a
18 minute, using the condensate booster pump. At that point,
19 that's when the trend turned around. They had level slowly
20 increasing. I was satisfied at that point that they had
21 established a feed path and they could continue with their
22 cool-down, and they wouldn't have any problems maintaining
23 vessel level.

24 At about that time, I also went over --

25 MR. ASHE: Excuse me, Rob.



1 MR. TEMPS: Yes.

2 MR. ASHE: Do you recall what indicators they were
3 using for establishing vessel level was increasing?

4 MR. TEMPS: There are chart recorders, and I think
5 this was a matter of communicating with the people over at
6 the ECCS panels. I know the annunciators were back, and I
7 thought -- there are big visual displays up above the
8 control panel, but those are fed off the process computer,
9 so I know they weren't looking at those at that time. I'm
10 not sure exactly what they were looking at, but they were
11 quite aware of the trend and what water level was doing
12 throughout that time.

13 About that time, also -- maybe before 6:53 -- I
14 also established the tie line to the headquarters duty
15 officer. I called the commercial number down there and told
16 them who I was and that I wanted to establish an open,
17 independent line from the control room. I guess they
18 weren't quite sure what to do at first, at least the
19 individual I was talking with, because I heard him talking
20 to someone in the background: Hey, we've got the resident
21 here; he wants to open up a phone line. They eventually
22 tied us in to the -- I'm not sure of the exact name --
23 reactor safety counterparts link, or something of that
24 effect. We were the first ones on the line at that time,
25 but as time progressed the region came on, and headquarters,



1 and then other people.

2 MR. JENSEN: Let me stop you just a minute. Did
3 you make note of the licensee calling up headquarters or
4 calling up to the region? Was he making notification at
5 that time?

6 MR. TEMPS: By the time I came in, I believe, they
7 had already made the notification, and the individual who
8 was on the phone was, I believe, an ASSS from the oncoming
9 shift. I could see him talking, supplying information, so I
10 knew that headquarters was requesting information at that
11 time.

12 MR. JENSEN: That was when you came in?

13 MR. TEMPS: That's approximately when I came in,
14 probably between 6:30 and 6:40 in the morning.

15 MR. JENSEN: Okay.

16 MR. TEMPS: The first thing -- basically, I just
17 stood back and just verified -- tried to get a feeling for
18 what people were doing and what the plant parameters were,
19 but things were in control. It was a very professional
20 atmosphere; there was no yelling or shouting, and things
21 didn't seem out of hand. I wasn't concerned, from looking
22 at the plant parameters, where the water level was and
23 temperatures and pressures, that they had any significant
24 problem; just establishing their feed path at that time
25 seemed to be the major evolution.



1 MR. JENSEN: Could you say something about the
2 supervision that was going on in the control room by the
3 shift supervisor? Was he probably much controlling
4 activities?

5 MR. TEMPS: He appeared to be very well in
6 control. I guess traditionally they direct people to do
7 things; they go the panels, and they do the operations
8 they've been directed to do, but they always provide
9 feedback, and they were providing feedback on what they were
10 doing with the feed system, what level was doing.

11 There was good command and control there. For
12 example, around 7 o'clock, when they had indication that all
13 their rods were full in -- There had been a problem there
14 initially. They were in contingency 5 procedure for ATWS.
15 At 7 o'clock they had all-rods-in indication, and the SSS
16 purposely got everyone's attention in the control and
17 announced that they were coming out of C-5. He made sure
18 that people -- if he didn't think they heard him, he called
19 the specific individual and made sure that they understood
20 that they were coming out of C-5, that they were no longer
21 in that procedure. Once they had feed control, he was
22 establishing the band, 165 to 180 inches, as they feed up to
23 control water level in that band. He appeared quite
24 informed of what was going on, setting priorities.

25 MR. JENSEN: When they were going through the



1 emergency procedures -- I understand that the procedures are
2 drawn in charts, and they have parallel paths to follow
3 pressure and temperature and level. Did they seem to be
4 following down these charts in an orderly fashion, going
5 down all the three legs?

6 MR. TEMPS: It appeared that way, because they
7 grease-pencil in the sections that they perform, and you
8 could see -- RPV control, I think, was the one EOP they
9 were in, as well as C-5; they were in both of those for a
10 time. You could see where they were grease-penciling their
11 flow path through the procedures. It would appear they were
12 going through them in a rigorous fashion.

13 MR. JENSEN: I guess I've got one more to ask you
14 before I let you continue your story that I interrupted you
15 from. When you were first going through the gate and there
16 were about 20 people lined up and you got through rather
17 easily, did you observe the licensee's people having
18 difficulty entering the plant? Were they having more
19 trouble than you were?

20 MR. TEMPS: Well, nobody was getting in at the
21 point -- I went through so quickly that I didn't see if
22 other people were trying to get through. I could see the
23 board was up saying they were in a site area emergency, and
24 I just walked past everyone and identified myself to the
25 guards; I think they already knew who I was. I don't recall



1 anyone else trying to get access.

2 I do remember, when I was up in the control room,
3 throughout the morning there were calls coming in to the
4 SS's office -- you know, so-and-so's at the gate; he doesn't
5 have his green card; we need to get him in. There seemed to
6 be some communication there with getting essential people in
7 who -- I keep hearing the green card, which I guess is a
8 card that's issued by the local county emergency officials.
9 That's something I turned over to I guess Craig Gordon, for
10 the AIT to follow up on that issue of access to the plant.

11 I didn't observe anything firsthand. I came
12 through so quickly that -- I think key managers were still
13 coming in, and they probably got access with their green
14 cards. In fact, I saw the Unit One maintenance manager, who
15 was coming in just as I was, walking through the parking
16 lots. I would imagine he got through to go to the TSC.

17 MR. JENSEN: Okay.

18 Frank, have you got any questions to ask him
19 before we let him continue with his story?

20 MR. ASHE: No. I'd like for him to continue with
21 his story right now.

22 MR. JENSEN: Okay.

23 I think you were at 6:53, on tie lines to the duty
24 officer.

25 MR. TEMPS: Right.



1 I think I established it before then, but I
2 watched things in the control room for about five minutes,
3 just to get a feel for where they were and that things were
4 under control, before I broke off and tied in with the duty
5 officer.

6 Once that link was established, I put Joe Furia on
7 the phone, to be the phone talker, and I just went back and
8 observed what was going on in the control room. That's
9 where I observed what was going on with getting level
10 control back on the condensate booster pump. At 7 o'clock,
11 as I said, the announcement was made that all the rods were
12 in and that they were coming out of C-5, so I did some
13 follow-up questions on what that issue was. Basically, once
14 they got the full-core display back, there was indication
15 that there were six rods that weren't fully inserted, so
16 they continued with the contingency procedure.

17 Around 7:07 I heard the operators talking with the
18 SS regarding a problem with the feed pump suction valves,
19 the fact that they could not get the suction valves back
20 open. At that time they did not understand what the problem
21 was, so they continued feeding with the bypass valves -- the
22 137 valves is what they're called -- which are your low-flow
23 feed control valves that you use during startups. At that
24 point water level was still coming up; I have that they were
25 at 145 inches and increasing at that time.



1 They appeared to be having a problem with the
2 suction valves, but it wasn't preventing water from getting
3 to the reactor; they still had a flow path established.

4 MR. JENSEN: When they first started working with
5 the 84 valves, how long did they work with them, trying to
6 get them open, before they opened the 137? Was this a long
7 time? Were there a lot of operations that were being done,
8 or did they seem to pretty much --

9 MR. TEMPS: I'm not sure of all the details of
10 what exactly they were doing at the panel; I didn't go up
11 and watch over their shoulder; as an examiner, I learned to
12 observe and let the professionals do their job. They must
13 have had the 137 open, by virtue of the fact that water
14 level was coming up. They had turned it around at 133
15 inches.

16 I believe some of the operators were initially
17 discussing with themselves that they couldn't get the
18 suction valves open, and then that information was relayed
19 to the SSS. I just had on my notes here, it's 7:07 that
20 they talked to the SSS about the fact that they couldn't get
21 the suction valves open. They didn't know if there was an
22 interlock problem or a valve problem or something to do with
23 the present conditions that were preventing those getting
24 open. They continued feeding with the 137s.

25 MR. JENSEN: We understand that there was a



1 radiation hold on the turbine building and they couldn't
2 open the bypass. Were you privy to how that knowledge, how
3 that information --

4 MR. TEMPS: No. In fact, I just learned about
5 that this morning, talking with some people at the scram
6 group. Apparently there were some valves out there that
7 would have involved the valves that bypassed the 84 valves,
8 which are the feed suction valves; they didn't feel it was
9 prudent to go in at that time. I didn't recall hearing any
10 of that.

11 MR. JENSEN: Okay.

12 MR. TEMPS: Let's see. I also noted here at 7:07
13 that the process computer was back. They must have rebooted
14 it at that time. When you got that back, you can call up
15 certain parameters that you want to put on the digital
16 display, and at that time I recall that you could see --
17 they had the pressure, temperature, and vessel level up on
18 the big digital display, and I pointed those out to Joe
19 Furia on the phone, so if people wanted to know what current
20 plant conditions were, all he had to do was stand up, and he
21 could look and see what the digital display was reading. He
22 relayed quite a bit of information periodically, as far as
23 what plant conditions were.

24 MR. JENSEN: Rob, you're giving us a lot of times.
25 Are these times that you took down?



1 MR. TEMPS: These are what I took down from the
2 clock in the control room. I didn't do that consistently; I
3 did that for maybe the first hour, and everything else was
4 just questions and writing down questions as they came in
5 and tracking down loose ends. Because really, after about
6 the first hour, it was obvious that plant conditions were
7 stabilized, and it was just a matter of continuing on with
8 your cool-down and depressurizing and getting systems ready
9 for shutdown cooling and what have you.

10 MR. JENSEN: Did you notice anybody else taking
11 notes besides yourself?

12 MR. TEMPS: Not really. Joe was also taking
13 notes. He took logs about every 15 minutes of plant
14 conditions, and I believe those were turned over to the AIT
15 or the IIT team members.

16 MR. JENSEN: Did you give us a copy of your notes?

17 MR. TEMPS: Well, no. I'm not sure they're in a
18 condition to turn over. It's just a lot of mish-mash.

19 MR. JENSEN: What about licensee people? Did you
20 notice any of the licensee's people taking notes and writing
21 down times?

22 MR. TEMPS: I don't recall anyone taking notes. I
23 believe the SSS was working on the EOP flow charts in grease
24 pencil. A lot of the time they write notes off to the side
25 with times, on the side on the plexiglass there. I can't



1 say for sure, but I remember seeing writing on there, so I
2 think he was keeping track of things that way. Nobody
3 really had time to keep a formal log. I know that in the
4 afternoon, before the midnight crew left, they had to sit
5 down and fill out the forms for what they saw. I think the
6 logs for that period are basically reconstructed logs -- at
7 least that's how they were represented to me: The SSS sat
8 down and reconstructed events, I guess, based on informal
9 log-keeping through the event.

10 I don't recall anyone writing times and what
11 events were going on in a rigorous manner.

12 MR. JENSEN: Except for yourself. You wrote down
13 some times, and you said Joe wrote down some times.

14 MR. TEMPS: Right. Joe kept the most detailed for
15 where plant conditions were. He was doing that about every
16 15 minutes, I guess.

17 MR. JENSEN: Okay. You didn't notice any of the
18 licensee's people taking the same sort of rigor in times?

19 MR. TEMPS: Not in a rigorous manner, no.

20 MR. JENSEN: But they were taking down some notes.

21 MR. TEMPS: They were taking down. I'm pretty
22 sure the SSS, from the notations -- I'd have to go back and
23 look at the Polaroids that they took, but I'm pretty sure he
24 was keeping track of things with the grease pencil.

25 MR. JENSEN: Okay.



1 We left you at 7:07, when you noticed that the
2 process computer had been rebooted.

3 MR. TEMPS: It was back. I just noted that for
4 some reason.

5 The only other two things that I really have tied
6 into times were at 7:16 -- I've got that the plant was at
7 562 pounds -- and at 7:19 they were at 154 inches reactor
8 vessel level and increasing.

9 Sometime around that period I think Joe got a
10 question from the region as far as what -- the question was,
11 What EOP are they in, and what page are they on. I think
12 that's a PWR mindset there, with those types of questions.
13 I told Joe to tell them they were on the RPV path and that
14 they're not on a page number; that they have flow charts up
15 here. He relayed that back to -- I think that came out of
16 the region, that question, the guy who relayed it.

17 About that time, also, I think Jim Wiggins was on
18 the line, and he relayed that -- I talked to him on the ENS
19 line; I don't think he knew that I had the counterpart line
20 open yet. They mentioned that Tim Martin wanted to talk
21 with Marty McCormick as soon as possible, and I informed him
22 that we had our separate line that was open, if we wanted to
23 use that. I relayed that request on to the TSC, and I told
24 Joe to tell the people on the counterparts link that Marty
25 McCormick was in the process of turning over to take over



1 emergency-director responsibilities and he wouldn't be
2 available right away for the regional administrator to talk
3 with. That request came in a second time, I believe, and we
4 just had to tell them that Mr. McCormick was busy assuming
5 the duties. They did talk later on; I'm not sure what time.

6 I really don't have any time frame after that for
7 the rest of the events. A lot of it was just talking with
8 people on the line, talking with Jim Wiggins; Wayne Schmidt
9 was on there for a while. I think Wayne asked, What's going
10 on in the control room; what's the atmosphere like up there?
11 I just relayed to him that everything was pretty well
12 controlled, the plant was stabilized, and the basis for why
13 I thought it was stabilized -- that they had a heat-removal
14 path, and they were able to put water in the reactor using
15 their normal systems. They were just continuing with their
16 cool-down. I think I was able to assure people that things
17 were in control up there.

18 A question came in later in the morning, when the
19 decision was made to -- Frank's probably interested in this
20 aspect. One thing they wanted to do was get the UPS's off
21 the maintenance and get them back to a normal AC line-up.

22 MR. ASHE: Excuse me, Rob. Do you understand the
23 basis of why they wanted to do that?

24 MR. TEMPS: I believe it was a decision from Marty
25 McCormick, down in the TSC, that, to come out of the site



1 area emergency, first they had to be cooled down less than
2 200 degrees, and he wanted to get the units back on their
3 normal supply, which is a more reliable supply, prior to
4 coming out. I'm not sure of all the loads, but I know that
5 the A and B UPS's are probably your most critical ones, as
6 far as having all your instrumentation. I guess he didn't
7 feel comfortable sitting there on the maintenance supply
8 that, if you had some transient on your offsite power
9 supply, you could lose instrumentation again, which would
10 complicate things again.

11 I just knew that it was a decision from Marty
12 McCormick, that his preference was to get back on the normal
13 supplies.

14 I know they were pursuing -- it must have been
15 late morning -- getting the supplies back on a normal path,
16 because they decided to do the C and D UPS's first. The
17 main reason for that was, I don't think they have any really
18 significant loads on them; secondly, if the units had been
19 damaged -- I'm not saying they were smoke-testing the
20 units, but if there were problems with the units I guess you
21 could stand to lose one or two of those. If they were able
22 to get those units back, that would be a good indicator for
23 the other three units, UPS's, I guess, that they weren't
24 damaged. That's what I gathered the philosophy was, just
25 from what I could hear up in the control room.



1 You could see the annunciator lights going out as
2 they switched from maintenance back to normal AC; the lights
3 goes off up in the control room on the annunciator panel
4 there.

5 The region I guess -- and maybe headquarters as
6 well -- started having some concern and questions as to what
7 exactly was the licensee doing to re-energize these units,
8 how were they controlling it, who was controlling it, were
9 they smoke-testing the units? One individual got on the
10 phone and talked to me from the region, named Bill Ruland,
11 and he was going, Well, we want to know what's going on;
12 what are they doing? He was saying, get the engineer or
13 whoever's in charge of that up here so we can talk to him on
14 the phone, that type of thing. I don't think that was a
15 reasonable request at the time, since the engineer was down
16 in the basement, the guy who was most knowledgeable,
17 directing the electricians and the operators in the sequence
18 for getting the units back on line.

19 Based on those questions and concerns, I said,
20 Well, number one, you should talk to the TSC. Rich Lara was
21 on the line; he was down in the TSC by this time. I said,
22 You should talk with Rich and talk with the maintenance
23 people in the TSC to see what they're doing. I'll go down
24 and watch and see what they're doing to re-energize the
25 inverters.



1 I went down and found the team at that time. They
2 were coming from the one building over into the control
3 building basement. I went over and down to where the Gulf
4 UPS is and talked with the system engineer and one of the
5 electricians, as far as what they were doing to re-energize
6 these units. Were they smoke-testing them, or what exactly
7 was the plan?

8 MR. ASHE: Excuse me, Rob. As far as you know at
9 that time, no one had gone to the Gulf unit location to
10 restore the unit preceding --

11 MR. TEMPS: That's correct. They had concentrated
12 on the A through D units. I don't believe that unit had
13 been touched since being put back on the maintenance bus.

14 MR. ASHE: So these fellows that went down were
15 part of the damage control team or damage assessment team?

16 MR. TEMPS: Right. In fact, they hadn't even been
17 called a damage repair team yet, because I remember that,
18 right after they energized that unit, I think they got a
19 call from the TSC, saying, You need to come back and
20 formally check out as a damage repair team. I think the OSC
21 was establishing -- they're in charge of tracking damage
22 repair teams. I think they had to go back and formally sign
23 out for accountability.

24 MR. ASHE: So you accompanied the team to the Gulf
25 unit.



1 MR. TEMPS: To the Gulf inverter, right.

2 MR. ASHE: Rather than being present subsequent to
3 someone being in that location.

4 MR. TEMPS: Right.

5 So the team arrived at the Gulf inverter. I think
6 before they energized the unit, I seem to remember that the
7 system engineer got a phone call from his boss's boss, John
8 Conway, in the TSC, so he went off to one of the Gaitronics
9 for about ten minutes.

10 I talked with one of the electricians that was on
11 the team as far as what they were doing to energize this
12 unit. He explained to me how they were energizing the unit
13 in such a fashion that you could energize the inverter and
14 the rectifier portion but that the instrument bus or
15 whatever would still stay on the maintenance feed. There's
16 a plug that you can disconnect between CB-3 and CB-4, I
17 think it is, that prevents the interlock, so that CB-4 would
18 stay shut during this event. Even though you were
19 energizing the unit, it wasn't going to try to pick up; even
20 if it did damage itself or if it had an electrical problem,
21 that wouldn't upset the maintenance supply. I was satisfied
22 that what they were doing wasn't going to disturb anything
23 further as far as the maintenance supply, that it would be
24 starting up without a load on it, I guess.

25 MR. JENSEN: Were they following any kind of



1 procedure when they were --

2 MR. TEMPS: No, they were never in a procedure.
3 They were basically following the instructions of the system
4 engineer, who to my mind appeared very knowledgeable of the
5 units. He described to me that basically they were starting
6 it up the way the vendor does when he comes in. I guess you
7 turn on the AC and start up the unit. I guess the unit has
8 diagnostics or test functions that come into play once it's
9 energized.

10 Anyway, when the system engineer came back, he
11 started directing the operations of the electricians and the
12 operators who were there. They opened up the panels, and
13 they opened up the plug that connects CB-3 with CB-4. I'm
14 not sure if they had to -- no, that was later on. They had
15 to reset something in CB-4 due to the logic that they were
16 in at the time -- I'm not sure of the details -- with CB-4
17 to get that to work when they finally got the unit back on
18 line.

19 Basically, they shut CB-1, which I guess is the AC
20 input. You could see the needles responding. The voltage
21 came up, and then it went right back down again, so they
22 knew that the power feed breaker to that inverter had
23 tripped. They reopened CB-1; they sent an operator
24 upstairs; he reset the power feed; they had him stand by,
25 and they tried re-energizing the unit again with CB-1, and



1 it was successful that time. It took the load and didn't
2 trip again. I don't think they know why the power feed
3 tripped. Again, I didn't feel it was inappropriate to try
4 it again after it trips once; that happens a lot of times
5 with electrical systems.

6 They had the unit energized off the AC, and I know
7 they cut CB-2 in at some time, the DC supply, but once it
8 was energized there are test lights that they looked at on
9 the left-hand portion of the unit. I think he was satisfied
10 from looking at it that the unit hadn't suffered any damage.
11 All the lights were on -- that one row of diodes; it's about
12 ten lights in a vertical array. I don't know all the
13 details on those, but he was satisfied that the unit was
14 operating properly.

15 Before they could put the unit back on -- to take
16 it off the maintenance supply, they had to shut the unit
17 down again internally; there's a switch that the electrician
18 reached and used to turn the unit off and then back on,
19 which reset some sort of logic. They had to do something
20 with CB-4 to get that to reset. They put the plug back in,
21 and then they were able to transfer from CB-4 to CB-3 and
22 pick up the load on the inverter.

23 MR. ASHE: Rob, as best you understand it, can you
24 explain the interlock plug that you're addressing here?

25 MR. TEMPS: The way I understand it, CB-3 is the



1 AC output from the inverter, which is your rectifier and
2 your inverter. I believe it's interlocked so that, if CB-3
3 -- I think it was designed so that, if you're feeding, say,
4 on your maintenance bus and CB-3 shuts, CB-4 should open,
5 and vice versa. I believe it's designed so you can't have
6 both shut at the same time, which you wouldn't want. That's
7 a crude understanding, I guess, that I have of that.

8 I knew that, when they energized the inverter,
9 they didn't want -- I think CB-3 would have gone shut,
10 because it wanted to put power out, but they didn't want CB-
11 4 to trip open when CB-3 went shut. They wanted to keep it
12 on the maintenance supply, so opening up that plug, I
13 believe, defeated that function. The output -- [Pause]

14 MR. ASHE: In terms of the number of people that
15 were in the restoration operation, could you give us a
16 number, approximate?

17 MR. TEMPS: There was a system engineer. There
18 were two electricians. There was an operator and a rad
19 tech. Probably five people all told.

20 MR. ASHE: Do you recall anyone taking any notes
21 as to status of the inverter when the first visual
22 inspection was made?

23 MR. TEMPS: No, I don't recall any note-taking,
24 formal note-taking.

25 MR. ASHE: Subsequent to the upstream feed breaker



1 tripping for the inverter, do you recall a second attempt?
2 Did that trip open a second time?

3 MR. TEMPS: It was successful the second time.
4 They had the operator reset the breaker upstairs. I'm not
5 sure what panel area that is, but he reset it; he stayed on
6 the phone; they told him to stand back, just in case there
7 was a problem when they went to energize the inverter again.
8 This time, when they shut CB-1, the AC into the rectifier,
9 or into the inverter, stayed shut and stayed energized, so
10 it did not retrip a second time.

11 MR. ASHE: To your knowledge, is that tripping of
12 the upstream breaker -- would you characterize that as
13 normal here, or you don't know, really?

14 MR. TEMPS: I don't know, really. I just know
15 from my experience, mainly with the shipyard, that
16 everything can be fine electrically, and the breaker will
17 trip for some reason, and it's usually prudent to retry it a
18 second time before you stop and start taking troubleshooting
19 actions to see what's causing it. A lot of times it starts
20 with no problem the second time and operates.

21 MR. ASHE: Are you familiar with the details of
22 that upstream breaker?

23 MR. TEMPS: No.

24 MR. ASHE: There have been several questions with
25 regard to a list of information which was generated in terms



1 of the status of the alarm lights on the UPS. Would you
2 care to comment as to how that may have been generated?

3 MR. TEMPS: Based on what I saw, it was probably
4 generated from memory. Are we talking the vertical lights?

5 MR. ASHE: That's correct. The status -- for
6 example, the logic trip light, the unit trip lights -- the
7 unit has trip lights and lamps on them. There is a list for
8 each of the five units of such lights. Supposedly these
9 lights were in the somewhat as-found condition. The
10 question has come up, as found by who, and, if so, how did
11 they record it? I was just wondering, would you like to
12 comment on that?

13 MR. TEMPS: Let's see. I'm thinking back now. On
14 the Gulf inverter it looked like one of those lights was
15 burned, and I remember going to the system engineer after
16 they had buttoned the system back up. I said, is that a
17 problem with that light being out? He goes, it's really not
18 out; it's just very dim. He put in a work request to get
19 that fixed, or a troubleshooting work request, whatever.

20 I seem to recall as I left there was an individual
21 down there that, now that we mention it, was writing down, I
22 believe that particular comment, so maybe there was someone.
23 Again, I left soon after it was energized to get back up to
24 the control room, but I think someone was writing down the
25 particular note on that light being out, that that would be



1 something to follow up on for troubleshooting.

2 I don't know what came of that. I seem to
3 remember someone taking some sort of note, but as far as
4 controlling it, as far as, Okay, this light is out; this
5 status is okay, and communicating that formally to someone
6 on a log of some type, I don't recall seeing that being
7 done.

8 MR. ASHE: So as best you understand it, then, or
9 as best you would like to comment on it, that status list of
10 information was most likely generated from someone's memory,
11 and that someone probably can't be identified.

12 MR. TEMPS: That would be my guess. It's the same
13 five team members. Someone there should be able to -- maybe
14 it's a composite from all their memories that was put
15 together. I'm not familiar with the list that we're talking
16 about.

17 MR. ASHE: Prior to this event are you aware of
18 any anomalies that had occurred on any of the five inverters
19 that were lost during the event?

20 MR. TEMPS: Not on those five. Again, I've been
21 at the site over three years, but basically following Unit
22 Two issues for the last two months. The only thing I've
23 ever heard before on inverters were on the safety-related
24 inverters. At one of the morning meetings they were having
25 problems with -- the units have fans that cool the units,



1 and they've had problems with the fan motors, I guess,
2 burning out, and they were talking about procuring safety-
3 related fan motors for replacements. As far as a history of
4 problems with those units, I wasn't familiar with one.

5 From talking with Wayne Schmidt I think he's
6 familiar with some issues, but nothing that I knew
7 firsthand.

8 MR. ASHE: Is there any information that you might
9 would like to record regarding the UPS that we haven't
10 specifically asked for here?

11 MR. TEMPS: I don't think so. I just basically
12 went down and watched them energize the Gulf unit, and I
13 left soon thereafter to get back up to the control room. I
14 knew they weren't going to be able to do anything with the A
15 and B UPS's due to, I guess, possible damage to the one and
16 a problem with a breaker on the other one; they wouldn't be
17 able to get them off the maintenance supply. The rest of
18 the event, you sat there with the annunciator on for A and B
19 being on the maintenance supply.

20 I don't have anything else to add on that aspect.

21 MR. JENSEN: I've got a couple of details I'd like
22 to ask about.

23 MR. TEMPS: Okay.

24 MR. JENSEN: When you were back in the control
25 room, recording times in your notes, what were you looking



1 at to get the time? I understand the clock was out.

2 MR. TEMPS: There's a -- I guess it's a battery-
3 powered clock in the back of the control room, right above
4 the glass for the SSS's office. I was taking my times off
5 that.

6 MR. JENSEN: Was that clock visible to the
7 operators in the control room?

8 MR. TEMPS: If you're on the floor, all you've got
9 to do is turn around, and it's up there, as I remember it.

10 MR. JENSEN: So everybody's notes should have the
11 same common base, as far as time?

12 MR. TEMPS: If that's what they were using, yes.

13 [Laughter.]

14 MR. JENSEN: Okay.

15 MR. TEMPS: I'm sure they were, since the big
16 digital clock wasn't working.

17 MR. JENSEN: About how many people were in the
18 control room at different times? What was the maximum
19 number of people that you saw there?

20 MR. TEMPS: When I walked in initially -- and,
21 again, it fluctuated throughout the event -- my first
22 impression was that there were quite a few people there.
23 Part of the assessment was to see who was there and what
24 they were doing. I recall there were maybe eight to ten
25 people at the panels, reactor operators; the SSS and his



1 assistant; the two phone talkers. I know Jerry Helker, the
2 ops superintendent, was there, walking the floor. And there
3 were other people that were just standing back in the SS's
4 office or behind the chained area, maybe five to ten other
5 people just there to watch or to assist -- probably a lot of
6 your non-licensed operators. I know, looking in the back of
7 the room, back where the work control center is in the back
8 and the PNID area, I remember seeing maybe five to ten
9 people back there; they were probably I&C technicians and
10 what have you. So there were probably at least 30 people --
11 probably around 30 people in there when I walked in.

12 MR. JENSEN: As far as the visibility of the
13 boards by the shift supervisor, were they being obstructed,
14 do you think, by the number of people there, or was there
15 free access?

16 MR. TEMPS: No, I think they had free access. The
17 people that were at the boards were the ones that were doing
18 specific functions. Everyone else, including me, basically
19 stood back and observed what was going on. Basically, you
20 catch their attention when you can; if they're between a
21 task, stop and talk to them, go up and talk with the SSS. A
22 lot of my initial contacts were just with Jerry Helker,
23 since he was basically in a supervisory role himself, to get
24 some of the details as far as what had happened initially.

25 MR. JENSEN: So you were in the control room,



1 then, until you went down to see the UPS?

2 MR. TEMPS: Right. I stayed up in the control
3 room until that evolution, and then I came back up to the
4 control room.

5 MR. JENSEN: About what time did you go down?

6 MR. TEMPS: I think it was between 10 and 11. I
7 don't know the exact time.

8 MR. JENSEN: Do you have an estimate of when it
9 was you came back?

10 MR. TEMPS: Pardon?

11 MR. JENSEN: Can you estimate when it was that you
12 came back again from the UPS -- back to the control room?

13 MR. TEMPS: Just before noon; that's all I know
14 for sure. I stopped taking time readings after about 7:30,
15 so everything was just blending in at that point: answering
16 questions from the region, status of RHR and other systems,
17 questions on the inverters. That's why I went down to watch
18 what they were doing, relay back to the region if they had
19 any further concerns as far as how that was being
20 controlled.

21 I made the assessment myself that it appeared to
22 be controlled in an adequate manner, considering the
23 condition they were in.

24 MR. JENSEN: Besides the difficulties they were
25 having with the condensate 84 valves, they reported some



1 difficulties with some of the other systems: the RHR, the
2 reactor water cleanup, and the RCIC. Can you recall any
3 particular problems they were having?

4 MR. TEMPS: On the RCIC, I remember hearing the
5 report that there was a question as to the indication on --
6 I believe it's the discharge check valve; that it was
7 indicating open. I remember talking with Deet Willis, I
8 believe is his name. He said they had had a history of
9 problems with that valve, or those valves, with the limit
10 switch settings. He went out with a damage team and
11 physically verified that the valve was in fact shut and that
12 it was really just an indication problem.

13 MR. JENSEN: Was that during the first time you
14 were in the control room?

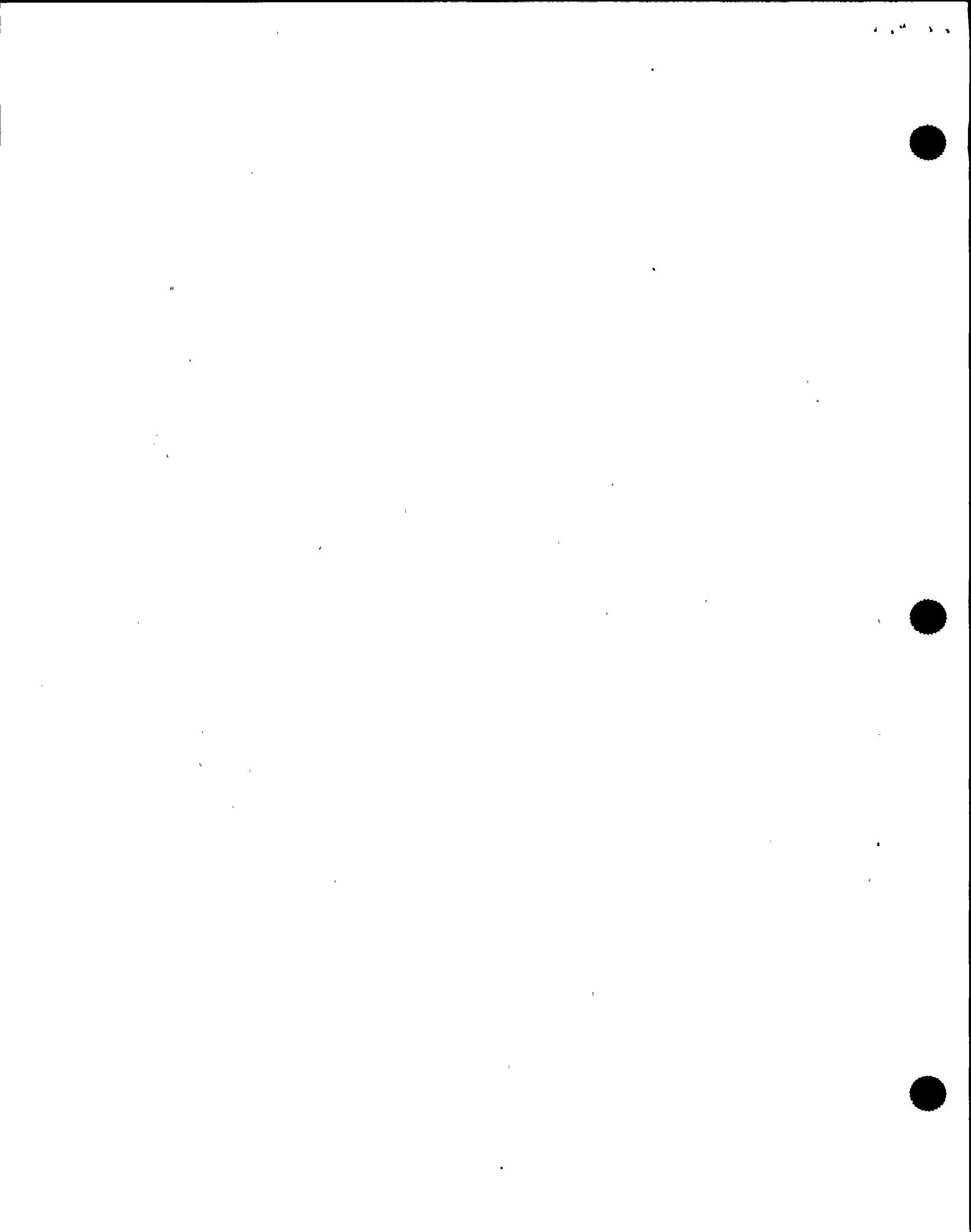
15 MR. TEMPS: This would have been late morning,
16 possibly early afternoon.

17 MR. JENSEN: After you went to see the UPS?

18 MR. TEMPS: I think that was after I went to see
19 the UPS.

20 That was really a non-problem. They satisfied
21 themselves that the valve in fact was shut physically.

22 The problem with the reactor water cleanup: I
23 just remember that, during the event, I could see that they
24 were planning to put cleanup in service, and they had one of
25 their best CSOs on the panel with the procedure, working to



1 get the cleanup in service. I remember standing back behind
2 the SSS at the point where they were ready to put it on
3 line. They seemed to be having some problem at that point.
4 They have some timers that activate at some point when they
5 put the system in service. They call them the delta timers
6 that time out; I believe when that times out the system
7 isolates on you if you haven't met certain conditions to
8 start up the system. I could see they were having problems,
9 because they said the timers are timing out.

10 I'm not sure of the details of what problem they
11 were having, but the system did end up isolating on them, so
12 they informed the SSS that it had isolated, and a decision
13 was made at that time just to leave it alone; they would
14 wait until they were shut down completely and cooled down
15 before trying to re-establish that system.

16 I'm not even sure why they were trying to put
17 cleanup in service at that time, other than for chemistry
18 reasons. It really had no bearing on continuing with the
19 cool-down or getting shutdown cooling in service.
20 Basically, they had to make another ESF, make a phone call
21 on that one because it's an ESF actuation. So that's a
22 separate LER, a separate issue.

23 MR. JENSEN: What about shutdown cooling? Did you
24 note any problems with that one?

25 MR. TEMPS: Shutdown cooling: The first thing



1 they had to do was, that uses their RHR system, and they had
2 tagged out -- I believe it was Division 2 -- early on the
3 midnight shift to support a divisional outage on that
4 system. They hadn't done any work yet, so the first thing
5 was to administratively clear out the tags that were hanging
6 on that system, so that they could operate the components
7 when they were ready to go into shutdown cooling.

8 They had a reactor operator, licensed individual,
9 assigned to get that system ready to support shutdown
10 cooling, and I could see he was working with the procedure.
11 It's a rather lengthy procedure to align the system. I
12 guess there are flushes you have to do, valves you have to
13 reposition. At one point you have to warm the system up for
14 quite a while before you can actually put it in service. He
15 appeared to be following the evolutions there.

16 I know at the point where they conduct the
17 flushes, or where they're warming up the system, he
18 communicated quite a bit with the individual who was
19 controlling feed and watching water level to communicate,
20 you know, watch your level, what we're doing, so that you
21 don't get any sudden decreases. They appeared to be
22 coordinating that pretty well.

23 I do remember that a report came up from people in
24 the field that they had heard pipes banging down in -- I
25 guess it must have been in the reactor building that they



1 had heard some pipes banging from water hammer. That was
2 discussed with the ROs, and I believe it was even discussed
3 with the SSS. It was mainly attributed to the fact that,
4 when you're flushing the system or warming it up by
5 diverting water to rad waste-- they were still well above
6 350 degrees at that time -- you're going get flashing in
7 that line, a steam-water mixture going to rad waste. They
8 appeared comfortable with proceeding with that part of the
9 procedure.

10 As far as any other problems, beyond the water
11 hammer, I'm not aware.

12 MR. JENSEN: What about the mechanical vacuum
13 pumps on the condenser? Were you aware of any problems they
14 had establishing?

15 MR. TEMPS: The only discussions I remember for
16 maintaining vacuum was, they wanted to get the aux boilers
17 started up as soon as possible to provide sealing steam for
18 the hoppers, they call them. I remember they got the aux
19 boilers going. I remember something about one of the aux
20 boilers tripping, but they still had the other aux boiler
21 available, and there was some discussion that that really
22 wasn't the preferable unit to use. There are certain
23 chemicals that you have to put in these boilers for
24 chemistry control, and I don't believe they were able to
25 sample that boiler to see what was going on with its



1 chemistry.

2 They did have the aux boiler supply that steam. I
3 don't recall hearing anything on the mechanical pumps
4 themselves, any problems.

5 MR. JENSEN: I believe that you mentioned that,
6 when you first came to the control room, you noted they had
7 condenser vacuum. Do you know how they were maintaining
8 condenser vacuum before they got the hoppers going?

9 MR. TEMPS: No.

10 MR. JENSEN: Was there any discussion about
11 monitoring the hoppers' output? I believe it goes up the
12 stack.

13 MR. TEMPS: I didn't hear anything on that.

14 I just add it's my presumption that they had
15 vacuum by virtue of the fact that the bypass valves were
16 still available to dump steam to the condenser. If you
17 didn't have vacuum, you wouldn't have those. The circ water
18 system was still operating, so that alone would probably
19 help you to maintain vacuum for quite a while.

20 MR. JENSEN: Okay.

21 Anything, Frank?

22 MR. ASHE: No.

23 MR. JENSEN: I guess we're supposed to ask one
24 last, general question. Did you see anybody doing anything
25 exceptionally good or exceptionally poor or anything else of



1 note that you would like to bring up?

2 MR. TEMPS: I don't know that I saw anything being
3 done poor. I'd say basically the operators did a good job
4 of maintaining the atmosphere in a professional manner.
5 There appeared to be good command and control. They were
6 enforcing repeat-backs of information and orders. Overall,
7 it was just very well controlled, I'd say. After the first
8 hour, it was pretty low-key, really, as far as just
9 continuing on with a normal shutdown and cool-down of the
10 plant, and, of course, pursuing the other issues with the
11 inverters and other little anomalies that came up as they
12 shut down. But they all seemed to be handled pretty well.

13 MR. JENSEN: Frank?

14 MR. ASHE: I don't have any additional questions.

15 MR. JENSEN: That's the end of the interview,
16 then. Thank you, Rob.

17 [Whereupon, at 11:20 a.m., the taking of the
18 interview was concluded.]

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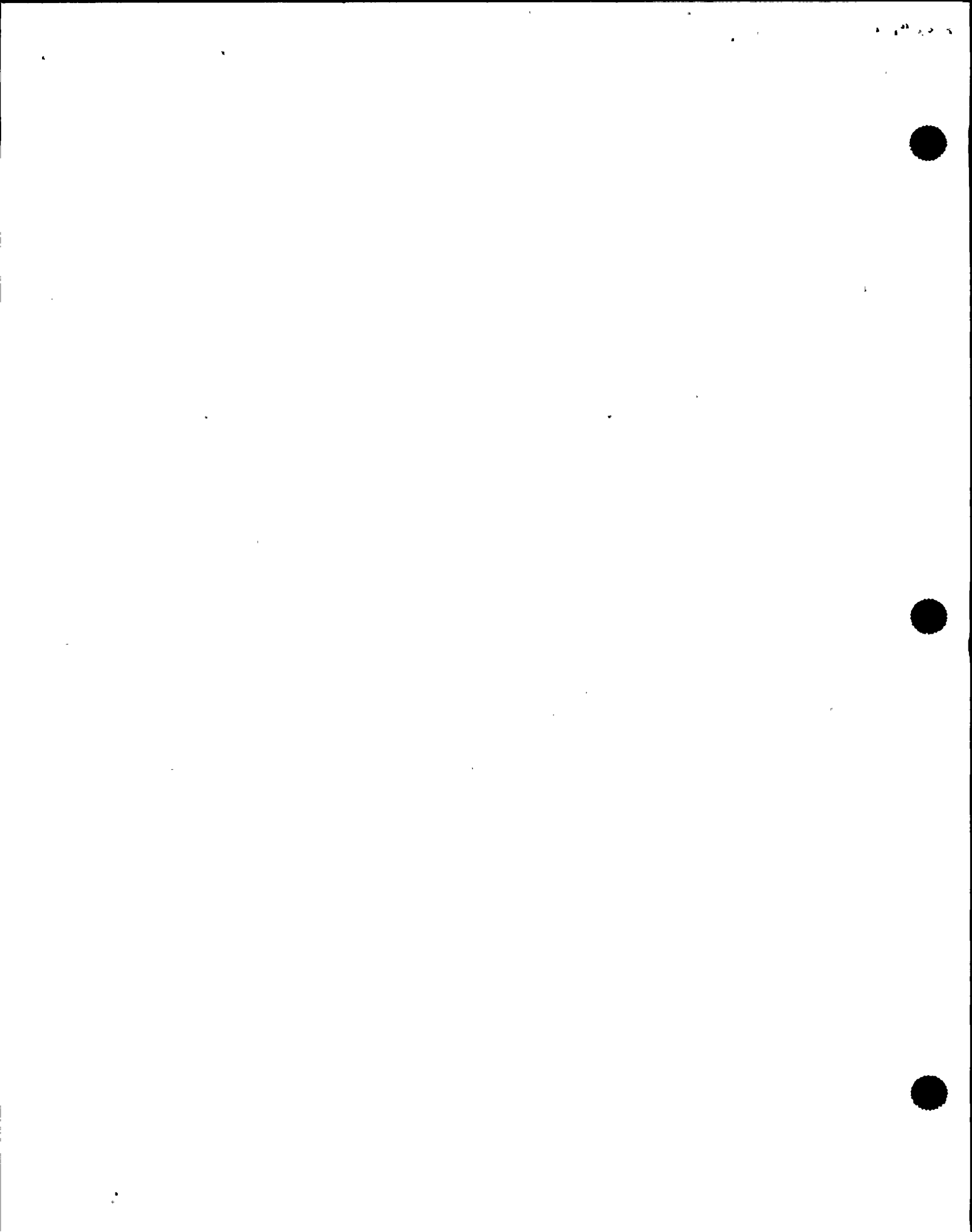
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REPORTER'S CERTIFICATE

This is to certify that the attached proceedings before the United States Nuclear Regulatory Commission

in the matter of:

NAME OF PROCEEDING: Interview of Rob Temps

DOCKET NUMBER:

PLACE OF PROCEEDING: Scriba, New York

were held as herein appears, and that this is the original transcript thereof for the file of the United States Nuclear Regulatory Commission taken by me and thereafter reduced to typewriting by me or under the direction of the court reporting company, and that the transcript is a true and accurate record of the foregoing proceedings.

Mark Handy

MARK HANDY

Official Reporter

Ann Riley & Associates, Ltd.



OFFICIAL TRANSCRIPT OF PROCEEDINGS

Agency: U.S. Nuclear Regulatory Commission
Incident Investigation Team

Title: Investigative Interview of:
Rob Temps
(Closed)

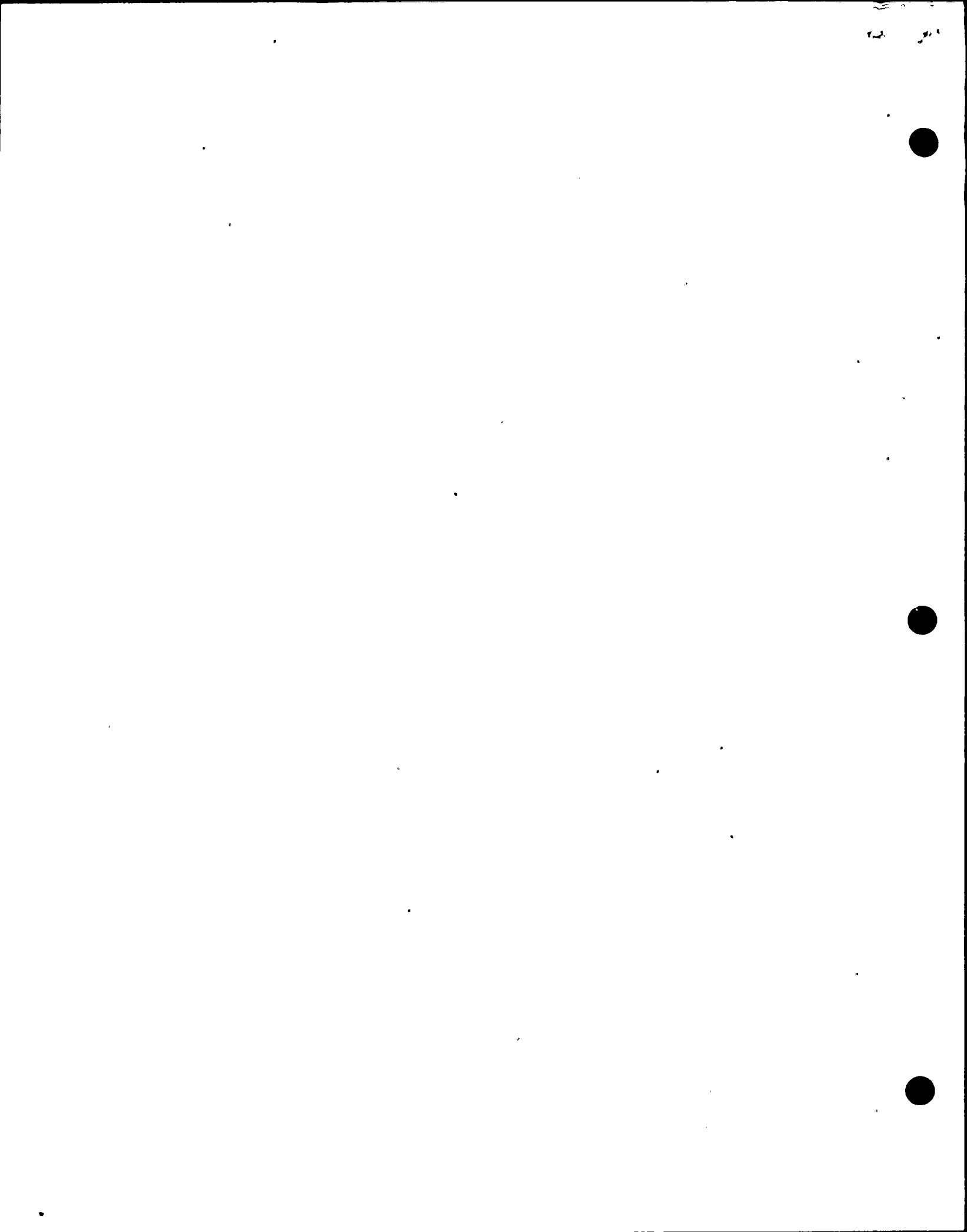
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LOCATION: Scriba, New York

DATE: Tuesday, August 27, 1991 PAGES: 1 - 38

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ADDENDUM

Page Line Correction and Reason for Correction

No corrections or clarifications made.

Robert Temp

Robert Temp 10/1/91

Date _____ Signature _____

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION
INCIDENT INVESTIGATION TEAM

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Interview of :
ROB TEMPS :
(Closed) :

Conference Room B
Administration Building
Nine Mile Point Nuclear
Power Plant, Unit Two
Lake Road
Scriba, New York 13093
Tuesday, August 27, 1991

The interview commenced, pursuant to notice,
at 10:20 a.m.

PRESENT FOR THE IIT:
Walton Jensen, NRC
Frank Ashe, NRC

2 3

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P R O C E E D I N G S

[10:20 a.m.]

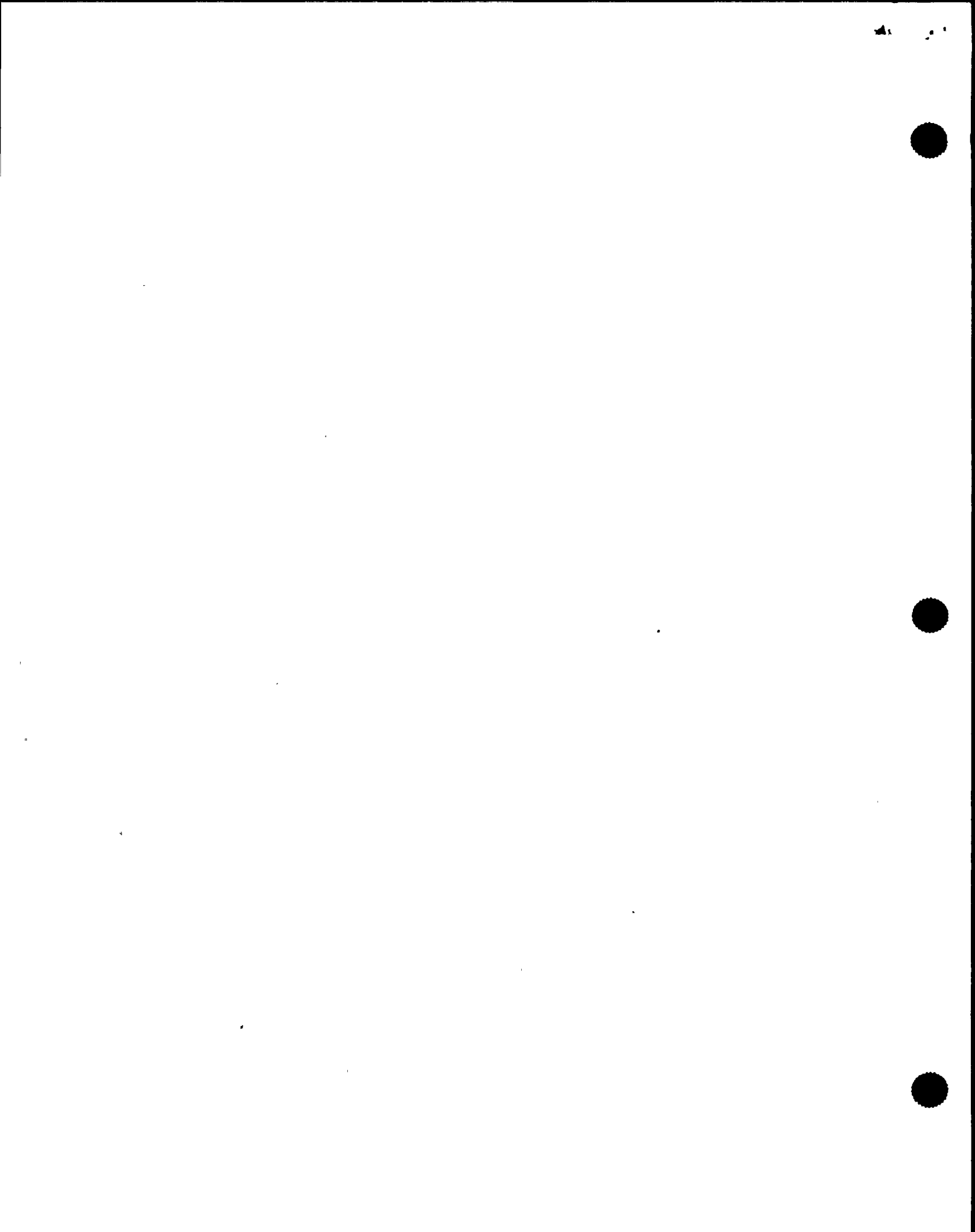
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2
3 MR. JENSEN: This is August 27, 1991, about 10:20
4 in the morning. This interview is part of the NRC incident
5 investigation of the Nine Mile Unit Two loss of control
6 power and reactor trip of August 13, 1991. I am Walton
7 Jensen from NRC headquarters.

8 MR. ASHE: My name is Frank Ashe, and I'm also a
9 member of the IIT team investigating the August 13 event
10 which occurred at Nine Mile Point Unit Two. I'm an
11 electrical engineer, and I'm from the Office of Nuclear
12 Reactor Regulation.

13 MR. TEMPS: My name is Rob Temps. I'm the Unit
14 Two resident inspector. I've been at Unit Two for
15 approximately two months, assigned duties there. Prior to
16 that I was the Unit One resident inspector for three years.

17 Prior to being assigned up here in June of '88 I
18 was in Region I as a PWR examiner. I did that function for
19 two years, and part of that job as an examiner was to assess
20 operators' performance for granting NRC operating licenses,
21 so I have a fair amount of background in assessing operator
22 performance, in plant and in simulators.

23 Prior to coming to work for the NRC in Region I, I
24 was a shift test engineer at the Norfolk Naval Shipyard. I
25 did that function for six years and worked on several



1 different naval reactor plant systems and designs.

2 MR. JENSEN: Okay, Rob.

3 On August 13, could you tell us how you found out
4 that there was a problem at Unit Two and something about how
5 you progressed to the control room and what you saw when you
6 got there?

7 MR. TEMPS: All right.

8 Just some background, prior to getting the phone
9 call informing me of the event that was ongoing: We had two
10 specialist inspections going on the week of the event. We
11 had two people that were up here to do a security
12 inspection, and there was one individual, by the name of Joe
13 Furia, who was up here to do a periodic radiological
14 inspection.

15 Joe likes to come in very early in the mornings to
16 get on site and start his inspection. He arrived on site
17 about 5 to 6 that morning, and, as he was walking out of the
18 NRC trailer, over towards Unit Two, he heard an announcement
19 on the site page system that there was a site area emergency
20 in effect on loss of annunciators and plant scram.

21 Joe went back to our trailer and started trying to
22 get hold of the resident inspectors. He got to my phone,
23 and fortunately everybody's names are programmed in on the
24 phone by first name, so he tried the Unit One resident first
25 and wasn't able to get hold of him, because his number just



1 changed and I hadn't programmed that in yet, but he got hold
2 of me at about 5 after 6 in the morning, apologized for
3 waking me up so early, and basically repeated back that Unit
4 Two was in a site area emergency for the loss of
5 annunciators and a reactor scram.

6 I verified with him that that wasn't a drill, that
7 that had in fact been declared. He mentioned he had tried
8 to call the other resident, so I gave him the phone number
9 there, to call that resident, and I told him I'd be in as
10 soon as I could and that he should just wait at the trailer,
11 and I would get up with him when I got on site.

12 I basically got dressed as fast as I could, got in
13 the truck, and drove in here, as prudently as possible, but
14 a little faster than normal. I recall that I got to the
15 gate -- it was probably around 6:30 in the morning -- and I
16 knew the event was for real because, number one, the cooling
17 tower wasn't putting out the normal vapor trail that does
18 and, secondly, there were about 20 people lined up outside
19 the Unit One security building, because they had restricted
20 access to the site at that time. So I knew that it was
21 basically for real, that something was going on.

22 I parked and came into security, and they know who
23 their residents are, so they let me through, and I got my
24 badge. I went over to the trailer and got together with Joe
25 Furia and requested that he go up to the control room with



1 me, because I told him we would take a phone in the back,
2 probably the reactor analyst's phone, which is in a back
3 corner, that we would be co-opting that and setting up our
4 own direct line to headquarters. He went up to be the phone
5 talker with me.

6 As we were walking over to Unit Two, I could hear
7 the announcement that they were starting up one of the
8 condensate booster pumps, so I figured they were probably in
9 the process of establishing some sort of feed path with the
10 feed system. I probably got up to the control room -- I
11 thought it was around 6:30, but from looking at sequence of
12 events it was probably between 6:30 and 6:40.

13 When I got into the control room, I walked into
14 the SS's office and just observed out the windows what was
15 going on in the control room. You could see at the panels
16 themselves there were probably between eight and ten
17 operators, doing various functions. They appeared mostly to
18 be working in groups of two at the different panels. I
19 verified that the SSS and his assistant were at the panels
20 where the EOPs are laid out, observed that they were giving
21 direction and that they were in the EOPs, and verified --
22 there were two individuals on the phones, one guy on the red
23 phone, talking with headquarters on the ENS line, and
24 another individual making, I guess, local calls and what
25 have you, local notifications.



1 I just watched what was going on for about four or
2 five minutes, and the main event of interest going on at
3 that time was getting the condensate booster pump on line
4 and getting a feed path established back to the reactor.
5 From looking at the plant parameters, I knew that the plant
6 had already cooled down and depressurized a significant
7 amount, which you expect after a trip. I knew they had a
8 cool-down path available; bypass valves were operable; they
9 still have vacuum in the condenser, so they had a means to
10 get rid of decay heat.

11 As I remember, water level was down around 137
12 inches and slowly decreasing, maybe an inch a minute. There
13 was communication between the individuals at the panel with
14 the feed control back to the SS as far as what was happening
15 with water level.

16 About 6:53 they got down to about 133 inches, at
17 which time they were feeding in at about 500 gallons a
18 minute, using the condensate booster pump. At that point,
19 that's when the trend turned around. They had level slowly
20 increasing. I was satisfied at that point that they had
21 established a feed path and they could continue with their
22 cool-down, and they wouldn't have any problems maintaining
23 vessel level.

24 At about that time, I also went over --

25 MR. ASHE: Excuse me, Rob.



1 MR. TEMPS: Yes.

2 MR. ASHE: Do you recall what indicators they were
3 using for establishing vessel level was increasing?

4 MR. TEMPS: There are chart recorders, and I think
5 this was a matter of communicating with the people over at
6 the ECCS panels. I know the annunciators were back, and I
7 thought -- there are big visual displays up above the
8 control panel, but those are fed off the process computer,
9 so I know they weren't looking at those at that time. I'm
10 not sure exactly what they were looking at, but they were
11 quite aware of the trend and what water level was doing
12 throughout that time.

13 About that time, also -- maybe before 6:53 -- I
14 also established the tie line to the headquarters duty
15 officer. I called the commercial number down there and told
16 them who I was and that I wanted to establish an open,
17 independent line from the control room. I guess they
18 weren't quite sure what to do at first, at least the
19 individual I was talking with, because I heard him talking
20 to someone in the background: Hey, we've got the resident
21 here; he wants to open up a phone line. They eventually
22 tied us in to the -- I'm not sure of the exact name --
23 reactor safety counterparts link, or something of that
24 effect. We were the first ones on the line at that time,
25 but as time progressed the region came on, and headquarters,



1 and then other people.

2 MR. JENSEN: Let me stop you just a minute. Did
3 you make note of the licensee calling up headquarters or
4 calling up to the region? Was he making notification at
5 that time?

6 MR. TEMPS: By the time I came in, I believe, they
7 had already made the notification, and the individual who
8 was on the phone was, I believe, an ASSS from the oncoming
9 shift. I could see him talking, supplying information, so I
10 knew that headquarters was requesting information at that
11 time.

12 MR. JENSEN: That was when you came in?

13 MR. TEMPS: That's approximately when I came in,
14 probably between 6:30 and 6:40 in the morning.

15 MR. JENSEN: Okay.

16 MR. TEMPS: The first thing -- basically, I just
17 stood back and just verified -- tried to get a feeling for
18 what people were doing and what the plant parameters were,
19 but things were in control. It was a very professional
20 atmosphere; there was no yelling or shouting, and things
21 didn't seem out of hand. I wasn't concerned, from looking
22 at the plant parameters, where the water level was and
23 temperatures and pressures, that they had any significant
24 problem; just establishing their feed path at that time
25 seemed to be the major evolution.



1 MR. JENSEN: Could you say something about the
2 supervision that was going on in the control room by the
3 shift supervisor? Was he probably much controlling
4 activities?

5 MR. TEMPS: He appeared to be very well in
6 control. I guess traditionally they direct people to do
7 things; they go the panels, and they do the operations
8 they've been directed to do, but they always provide
9 feedback, and they were providing feedback on what they were
10 doing with the feed system, what level was doing.

11 There was good command and control there. For
12 example, around 7 o'clock, when they had indication that all
13 their rods were full in -- There had been a problem there
14 initially. They were in contingency 5 procedure for ATWS.
15 At 7 o'clock they had all-rods-in indication, and the SSS
16 purposely got everyone's attention in the control and
17 announced that they were coming out of C-5. He made sure
18 that people -- if he didn't think they heard him, he called
19 the specific individual and made sure that they understood
20 that they were coming out of C-5, that they were no longer
21 in that procedure. Once they had feed control, he was
22 establishing the band, 165 to 180 inches, as they feed up to
23 control water level in that band. He appeared quite
24 informed of what was going on, setting priorities.

25 MR. JENSEN: When they were going through the



1 emergency procedures -- I understand that the procedures are
2 drawn in charts, and they have parallel paths to follow
3 pressure and temperature and level. Did they seem to be
4 following down these charts in an orderly fashion, going
5 down all the three legs?

6 MR. TEMPS: It appeared that way, because they
7 grease-pencil in the sections that they perform, and you
8 could see -- RPV control, I think, was the one EOP they
9 were in, as well as C-5; they were in both of those for a
10 time. You could see where they were grease-penciling their
11 flow path through the procedures. It would appear they were
12 going through them in a rigorous fashion.

13 MR. JENSEN: I guess I've got one more to ask you
14 before I let you continue your story that I interrupted you
15 from. When you were first going through the gate and there
16 were about 20 people lined up and you got through rather
17 easily, did you observe the licensee's people having
18 difficulty entering the plant? Were they having more
19 trouble than you were?

20 MR. TEMPS: Well, nobody was getting in at the
21 point -- I went through so quickly that I didn't see if
22 other people were trying to get through. I could see the
23 board was up saying they were in a site area emergency, and
24 I just walked past everyone and identified myself to the
25 guards; I think they already knew who I was. I don't recall



1 anyone else trying to get access.

2 I do remember, when I was up in the control room,
3 throughout the morning there were calls coming in to the
4 SS's office -- you know, so-and-so's at the gate; he doesn't
5 have his green card; we need to get him in. There seemed to
6 be some communication there with getting essential people in
7 who -- I keep hearing the green card, which I guess is a
8 card that's issued by the local county emergency officials.
9 That's something I turned over to I guess Craig Gordon, for
10 the AIT to follow up on that issue of access to the plant.

11 I didn't observe anything firsthand. I came
12 through so quickly that -- I think key managers were still
13 coming in, and they probably got access with their green
14 cards. In fact, I saw the Unit One maintenance manager, who
15 was coming in just as I was, walking through the parking
16 lots. I would imagine he got through to go to the TSC.

17 MR. JENSEN: Okay.

18 Frank, have you got any questions to ask him
19 before we let him continue with his story?

20 MR. ASHE: No. I'd like for him to continue with
21 his story right now.

22 MR. JENSEN: Okay.

23 I think you were at 6:53, on tie lines to the duty
24 officer.

25 MR. TEMPS: Right.



1 I think I established it before then, but I
2 watched things in the control room for about five minutes,
3 just to get a feel for where they were and that things were
4 under control, before I broke off and tied in with the duty
5 officer.

6 Once that link was established, I put Joe Furia on
7 the phone, to be the phone talker, and I just went back and
8 observed what was going on in the control room. That's
9 where I observed what was going on with getting level
10 control back on the condensate booster pump. At 7 o'clock,
11 as I said, the announcement was made that all the rods were
12 in and that they were coming out of C-5, so I did some
13 follow-up questions on what that issue was. Basically, once
14 they got the full-core display back, there was indication
15 that there were six rods that weren't fully inserted, so
16 they continued with the contingency procedure.

17 Around 7:07 I heard the operators talking with the
18 SS regarding a problem with the feed pump suction valves,
19 the fact that they could not get the suction valves back
20 open. At that time they did not understand what the problem
21 was, so they continued feeding with the bypass valves -- the
22 137 valves is what they're called -- which are your low-flow
23 feed control valves that you use during startups. At that
24 point water level was still coming up; I have that they were
25 at 145 inches and increasing at that time.



1 They appeared to be having a problem with the
2 suction valves, but it wasn't preventing water from getting
3 to the reactor; they still had a flow path established.

4 MR. JENSEN: When they first started working with
5 the 84 valves, how long did they work with them, trying to
6 get them open, before they opened the 137? Was this a long
7 time? Were there a lot of operations that were being done,
8 or did they seem to pretty much --

9 MR. TEMPS: I'm not sure of all the details of
10 what exactly they were doing at the panel; I didn't go up
11 and watch over their shoulder; as an examiner, I learned to
12 observe and let the professionals do their job. They must
13 have had the 137 open, by virtue of the fact that water
14 level was coming up. They had turned it around at 133
15 inches.

16 I believe some of the operators were initially
17 discussing with themselves that they couldn't get the
18 suction valves open, and then that information was relayed
19 to the SSS. I just had on my notes here, it's 7:07 that
20 they talked to the SSS about the fact that they couldn't get
21 the suction valves open. They didn't know if there was an
22 interlock problem or a valve problem or something to do with
23 the present conditions that were preventing those getting
24 open. They continued feeding with the 137s.

25 MR. JENSEN: We understand that there was a



1 radiation hold on the turbine building and they couldn't
2 open the bypass. Were you privy to how that knowledge, how
3 that information --

4 MR. TEMPS: No. In fact, I just learned about
5 that this morning, talking with some people at the scram
6 group. Apparently there were some valves out there that
7 would have involved the valves that bypassed the 84 valves,
8 which are the feed suction valves; they didn't feel it was
9 prudent to go in at that time. I didn't recall hearing any
10 of that.

11 MR. JENSEN: Okay.

12 MR. TEMPS: Let's see. I also noted here at 7:07
13 that the process computer was back. They must have rebooted
14 it at that time. When you got that back, you can call up
15 certain parameters that you want to put on the digital
16 display, and at that time I recall that you could see --
17 they had the pressure, temperature, and vessel level up on
18 the big digital display, and I pointed those out to Joe
19 Furia on the phone, so if people wanted to know what current
20 plant conditions were, all he had to do was stand up, and he
21 could look and see what the digital display was reading. He
22 relayed quite a bit of information periodically, as far as
23 what plant conditions were.

24 MR. JENSEN: Rob, you're giving us a lot of times.
25 Are these times that you took down?



1 MR. TEMPS: These are what I took down from the
2 clock in the control room. I didn't do that consistently; I
3 did that for maybe the first hour, and everything else was
4 just questions and writing down questions as they came in
5 and tracking down loose ends. Because really, after about
6 the first hour, it was obvious that plant conditions were
7 stabilized, and it was just a matter of continuing on with
8 your cool-down and depressurizing and getting systems ready
9 for shutdown cooling and what have you.

10 MR. JENSEN: Did you notice anybody else taking
11 notes besides yourself?

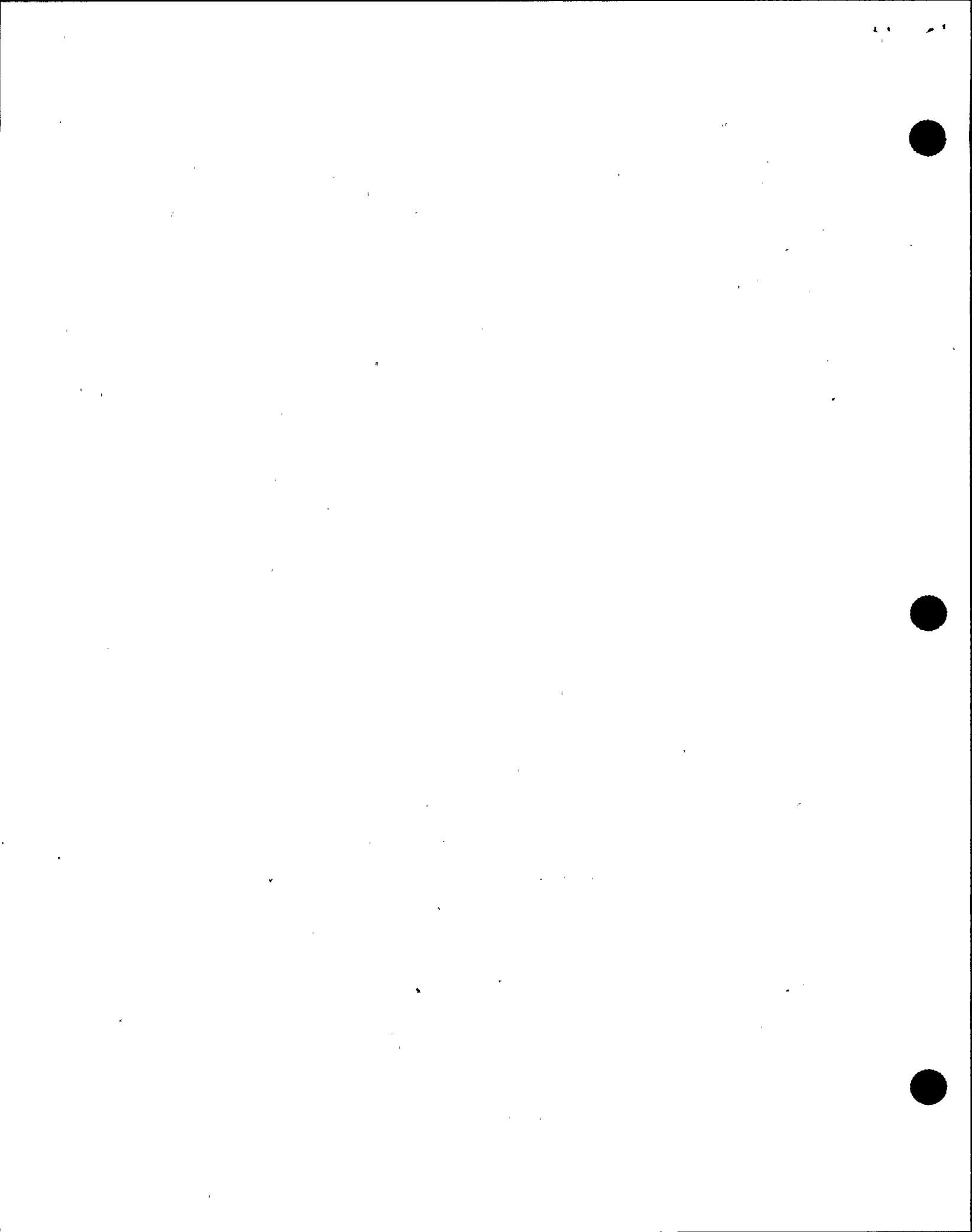
12 MR. TEMPS: Not really. Joe was also taking
13 notes. He took logs about every 15 minutes of plant
14 conditions, and I believe those were turned over to the AIT
15 or the IIT team members.

16 MR. JENSEN: Did you give us a copy of your notes?

17 MR. TEMPS: Well, no. I'm not sure they're in a
18 condition to turn over. It's just a lot of mish-mash.

19 MR. JENSEN: What about licensee people? Did you
20 notice any of the licensee's people taking notes and writing
21 down times?

22 MR. TEMPS: I don't recall anyone taking notes. I
23 believe the SSS was working on the EOP flow charts in grease
24 pencil. A lot of the time they write notes off to the side
25 with times, on the side on the plexiglass there. I can't



1 say for sure, but I remember seeing writing on there, so I
2 think he was keeping track of things that way. Nobody
3 really had time to keep a formal log. I know that in the
4 afternoon, before the midnight crew left, they had to sit
5 down and fill out the forms for what they saw. I think the
6 logs for that period are basically reconstructed logs -- at
7 least that's how they were represented to me: The SSS sat
8 down and reconstructed events, I guess, based on informal
9 log-keeping through the event.

10 I don't recall anyone writing times and what
11 events were going on in a rigorous manner.

12 MR. JENSEN: Except for yourself. You wrote down
13 some times, and you said Joe wrote down some times.

14 MR. TEMPS: Right. Joe kept the most detailed for
15 where plant conditions were. He was doing that about every
16 15 minutes, I guess.

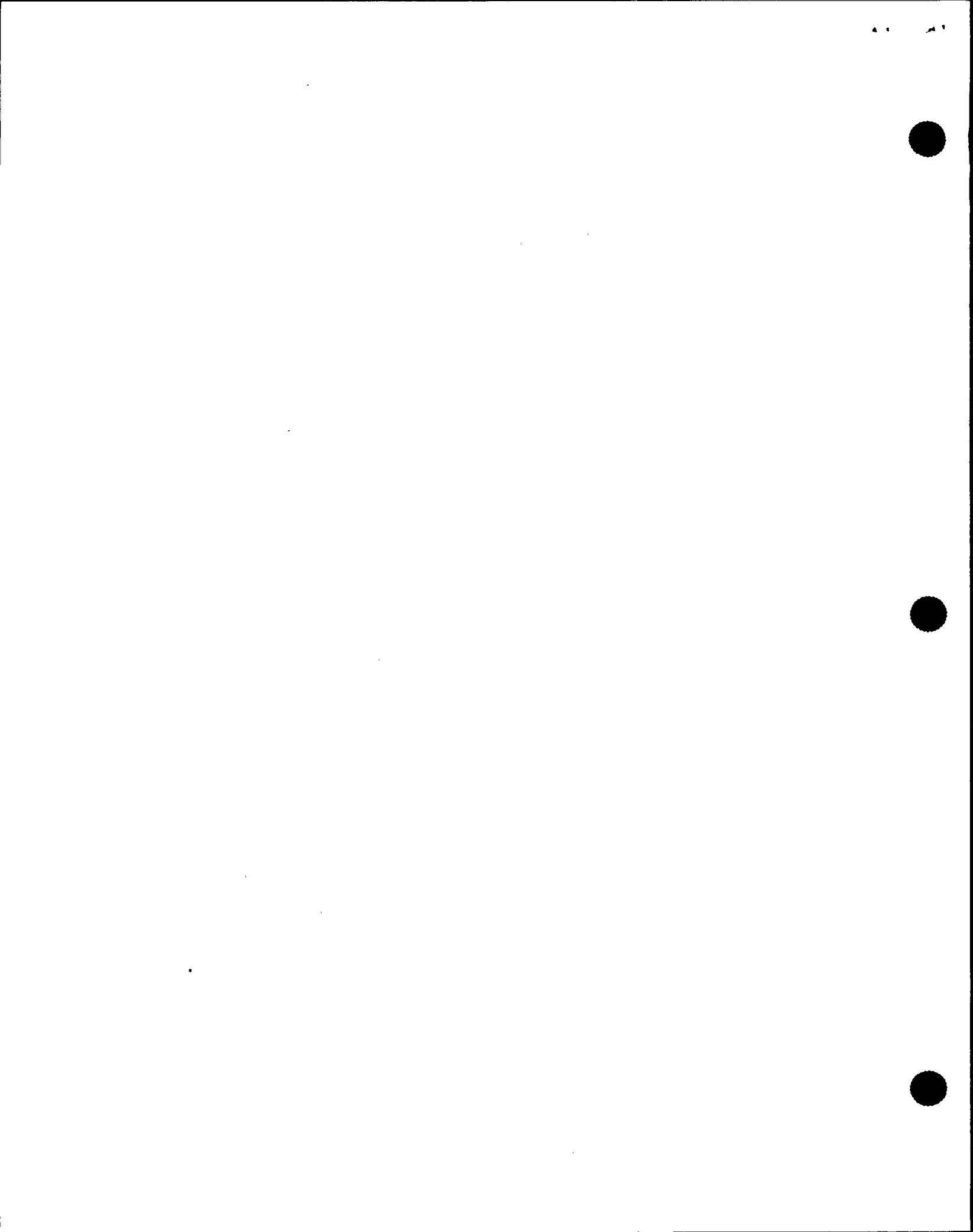
17 MR. JENSEN: Okay. You didn't notice any of the
18 licensee's people taking the same sort of rigor in times?

19 MR. TEMPS: Not in a rigorous manner, no.

20 MR. JENSEN: But they were taking down some notes.

21 MR. TEMPS: They were taking down. I'm pretty
22 sure the SSS, from the notations -- I'd have to go back and
23 look at the Polaroids that they took, but I'm pretty sure he
24 was keeping track of things with the grease pencil.

25 MR. JENSEN: Okay.



1 We left you at 7:07, when you noticed that the
2 process computer had been rebooted.

3 MR. TEMPS: It was back. I just noted that for
4 some reason.

5 The only other two things that I really have tied
6 into times were at 7:16 -- I've got that the plant was at
7 562 pounds -- and at 7:19 they were at 154 inches reactor
8 vessel level and increasing.

9 Sometime around that period I think Joe got a
10 question from the region as far as what -- the question was,
11 What EOP are they in, and what page are they on. I think
12 that's a PWR mindset there, with those types of questions.
13 I told Joe to tell them they were on the RPV path and that
14 they're not on a page number; that they have flow charts up
15 here. He relayed that back to -- I think that came out of
16 the region, that question, the guy who relayed it.

17 About that time, also, I think Jim Wiggins was on
18 the line, and he relayed that -- I talked to him on the ENS
19 line; I don't think he knew that I had the counterpart line
20 open yet. They mentioned that Tim Martin wanted to talk
21 with Marty McCormick as soon as possible, and I informed him
22 that we had our separate line that was open, if we wanted to
23 use that. I relayed that request on to the TSC, and I told
24 Joe to tell the people on the counterparts link that Marty
25 McCormick was in the process of turning over to take over



1 emergency-director responsibilities and he wouldn't be
2 available right away for the regional administrator to talk
3 with. That request came in a second time, I believe, and we
4 just had to tell them that Mr. McCormick was busy assuming
5 the duties. They did talk later on; I'm not sure what time.

6 I really don't have any time frame after that for
7 the rest of the events. A lot of it was just talking with
8 people on the line, talking with Jim Wiggins; Wayne Schmidt
9 was on there for a while. I think Wayne asked, What's going
10 on in the control room; what's the atmosphere like up there?
11 I just relayed to him that everything was pretty well
12 controlled, the plant was stabilized, and the basis for why
13 I thought it was stabilized -- that they had a heat-removal
14 path, and they were able to put water in the reactor using
15 their normal systems. They were just continuing with their
16 cool-down. I think I was able to assure people that things
17 were in control up there.

18 A question came in later in the morning, when the
19 decision was made to -- Frank's probably interested in this
20 aspect. One thing they wanted to do was get the UPS's off
21 the maintenance and get them back to a normal AC line-up.

22 MR. ASHE: Excuse me, Rob. Do you understand the
23 basis of why they wanted to do that?

24 MR. TEMPS: I believe it was a decision from Marty
25 McCormick, down in the TSC, that, to come out of the site



1 area emergency, first they had to be cooled down less than
2 200 degrees, and he wanted to get the units back on their
3 normal supply, which is a more reliable supply, prior to
4 coming out. I'm not sure of all the loads, but I know that
5 the A and B UPS's are probably your most critical ones, as
6 far as having all your instrumentation. I guess he didn't
7 feel comfortable sitting there on the maintenance supply
8 that, if you had some transient on your offsite power
9 supply, you could lose instrumentation again, which would
10 complicate things again.

11 I just knew that it was a decision from Marty
12 McCormick, that his preference was to get back on the normal
13 supplies.

14 I know they were pursuing -- it must have been
15 late morning -- getting the supplies back on a normal path,
16 because they decided to do the C and D UPS's first. The
17 main reason for that was, I don't think they have any really
18 significant loads on them; secondly, if the units had been
19 damaged -- I'm not saying they were smoke-testing the
20 units, but if there were problems with the units I guess you
21 could stand to lose one or two of those. If they were able
22 to get those units back, that would be a good indicator for
23 the other three units, UPS's, I guess, that they weren't
24 damaged. That's what I gathered the philosophy was, just
25 from what I could hear up in the control room.



1 You could see the annunciator lights going out as
2 they switched from maintenance back to normal AC; the lights
3 goes off up in the control room on the annunciator panel
4 there.

5 The region I guess -- and maybe headquarters as
6 well -- started having some concern and questions as to what
7 exactly was the licensee doing to re-energize these units,
8 how were they controlling it, who was controlling it, were
9 they smoke-testing the units? One individual got on the
10 phone and talked to me from the region, named Bill Ruland,
11 and he was going, Well, we want to know what's going on;
12 what are they doing? He was saying, get the engineer or
13 whoever's in charge of that up here so we can talk to him on
14 the phone, that type of thing. I don't think that was a
15 reasonable request at the time, since the engineer was down
16 in the basement, the guy who was most knowledgeable,
17 directing the electricians and the operators in the sequence
18 for getting the units back on line.

19 Based on those questions and concerns, I said,
20 Well, number one, you should talk to the TSC. Rich Lara was
21 on the line; he was down in the TSC by this time. I said,
22 You should talk with Rich and talk with the maintenance
23 people in the TSC to see what they're doing. I'll go down
24 and watch and see what they're doing to re-energize the
25 inverters.



1 I went down and found the team at that time. They
2 were coming from the one building over into the control
3 building basement. I went over and down to where the Gulf
4 UPS is and talked with the system engineer and one of the
5 electricians, as far as what they were doing to re-energize
6 these units. Were they smoke-testing them, or what exactly
7 was the plan?

8 MR. ASHE: Excuse me, Rob. As far as you know at
9 that time, no one had gone to the Gulf unit location to
10 restore the unit preceding --

11 MR. TEMPS: That's correct. They had concentrated
12 on the A through D units. I don't believe that unit had
13 been touched since being put back on the maintenance bus.

14 MR. ASHE: So these fellows that went down were
15 part of the damage control team or damage assessment team?

16 MR. TEMPS: Right. In fact, they hadn't even been
17 called a damage repair team yet, because I remember that,
18 right after they energized that unit, I think they got a
19 call from the TSC, saying, You need to come back and
20 formally check out as a damage repair team. I think the OSC
21 was establishing -- they're in charge of tracking damage
22 repair teams. I think they had to go back and formally sign
23 out for accountability.

24 MR. ASHE: So you accompanied the team to the Gulf
25 unit.



1 MR. TEMPS: To the Gulf inverter, right.

2 MR. ASHE: Rather than being present subsequent to
3 someone being in that location.

4 MR. TEMPS: Right.

5 So the team arrived at the Gulf inverter. I think
6 before they energized the unit, I seem to remember that the
7 system engineer got a phone call from his boss's boss, John
8 Conway, in the TSC, so he went off to one of the Gaitronics
9 for about ten minutes.

10 I talked with one of the electricians that was on
11 the team as far as what they were doing to energize this
12 unit. He explained to me how they were energizing the unit
13 in such a fashion that you could energize the inverter and
14 the rectifier portion but that the instrument bus or
15 whatever would still stay on the maintenance feed. There's
16 a plug that you can disconnect between CB-3 and CB-4, I
17 think it is, that prevents the interlock, so that CB-4 would
18 stay shut during this event. Even though you were
19 energizing the unit, it wasn't going to try to pick up; even
20 if it did damage itself or if it had an electrical problem,
21 that wouldn't upset the maintenance supply. I was satisfied
22 that what they were doing wasn't going to disturb anything
23 further as far as the maintenance supply, that it would be
24 starting up without a load on it, I guess.

25 MR. JENSEN: Were they following any kind of



1 procedure when they were --

2 MR. TEMPS: No, they were never in a procedure.
3 They were basically following the instructions of the system
4 engineer, who to my mind appeared very knowledgeable of the
5 units. He described to me that basically they were starting
6 it up the way the vendor does when he comes in. I guess you
7 turn on the AC and start up the unit. I guess the unit has
8 diagnostics or test functions that come into play once it's
9 energized.

10 Anyway, when the system engineer came back, he
11 started directing the operations of the electricians and the
12 operators who were there. They opened up the panels, and
13 they opened up the plug that connects CB-3 with CB-4. I'm
14 not sure if they had to -- no, that was later on. They had
15 to reset something in CB-4 due to the logic that they were
16 in at the time -- I'm not sure of the details -- with CB-4
17 to get that to work when they finally got the unit back on
18 line.

19 Basically, they shut CB-1, which I guess is the AC
20 input. You could see the needles responding. The voltage
21 came up, and then it went right back down again, so they
22 knew that the power feed breaker to that inverter had
23 tripped. They reopened CB-1; they sent an operator
24 upstairs; he reset the power feed; they had him stand by,
25 and they tried re-energizing the unit again with CB-1, and



1 it was successful that time. It took the load and didn't
2 trip again. I don't think they know why the power feed
3 tripped. Again, I didn't feel it was inappropriate to try
4 it again after it trips once; that happens a lot of times
5 with electrical systems.

6 They had the unit energized off the AC, and I know
7 they cut CB-2 in at some time, the DC supply, but once it
8 was energized there are test lights that they looked at on
9 the left-hand portion of the unit. I think he was satisfied
10 from looking at it that the unit hadn't suffered any damage.
11 All the lights were on -- that one row of diodes; it's about
12 ten lights in a vertical array. I don't know all the
13 details on those, but he was satisfied that the unit was
14 operating properly.

15 Before they could put the unit back on -- to take
16 it off the maintenance supply, they had to shut the unit
17 down again internally; there's a switch that the electrician
18 reached and used to turn the unit off and then back on,
19 which reset some sort of logic. They had to do something
20 with CB-4 to get that to reset. They put the plug back in,
21 and then they were able to transfer from CB-4 to CB-3 and
22 pick up the load on the inverter.

23 MR. ASHE: Rob, as best you understand it, can you
24 explain the interlock plug that you're addressing here?

25 MR. TEMPS: The way I understand it, CB-3 is the



1 AC output from the inverter, which is your rectifier and
2 your inverter. I believe it's interlocked so that, if CB-3
3 -- I think it was designed so that, if you're feeding, say,
4 on your maintenance bus and CB-3 shuts, CB-4 should open,
5 and vice versa. I believe it's designed so you can't have
6 both shut at the same time, which you wouldn't want. That's
7 a crude understanding, I guess, that I have of that.

8 I knew that, when they energized the inverter,
9 they didn't want -- I think CB-3 would have gone shut,
10 because it wanted to put power out, but they didn't want CB-
11 4 to trip open when CB-3 went shut. They wanted to keep it
12 on the maintenance supply, so opening up that plug, I
13 believe, defeated that function. The output -- [Pause]

14 MR. ASHE: In terms of the number of people that
15 were in the restoration operation, could you give us a
16 number, approximate?

17 MR. TEMPS: There was a system engineer. There
18 were two electricians. There was an operator and a rad
19 tech. Probably five people all told.

20 MR. ASHE: Do you recall anyone taking any notes
21 as to status of the inverter when the first visual
22 inspection was made?

23 MR. TEMPS: No, I don't recall any note-taking,
24 formal note-taking.

25 MR. ASHE: Subsequent to the upstream feed breaker



1 tripping for the inverter, do you recall a second attempt?
2 Did that trip open a second time?

3 MR. TEMPS: It was successful the second time.
4 They had the operator reset the breaker upstairs. I'm not
5 sure what panel area that is, but he reset it; he stayed on
6 the phone; they told him to stand back, just in case there
7 was a problem when they went to energize the inverter again.
8 This time, when they shut CB-1, the AC into the rectifier,
9 or into the inverter, stayed shut and stayed energized, so
10 it did not retrip a second time.

11 MR. ASHE: To your knowledge, is that tripping of
12 the upstream breaker -- would you characterize that as
13 normal here, or you don't know, really?

14 MR. TEMPS: I don't know, really. I just know
15 from my experience, mainly with the shipyard, that
16 everything can be fine electrically, and the breaker will
17 trip for some reason, and it's usually prudent to retry it a
18 second time before you stop and start taking troubleshooting
19 actions to see what's causing it. A lot of times it starts
20 with no problem the second time and operates.

21 MR. ASHE: Are you familiar with the details of
22 that upstream breaker?

23 MR. TEMPS: No.

24 MR. ASHE: There have been several questions with
25 regard to a list of information which was generated in terms



1 of the status of the alarm lights on the UPS. Would you
2 care to comment as to how that may have been generated?

3 MR. TEMPS: Based on what I saw, it was probably
4 generated from memory. Are we talking the vertical lights?

5 MR. ASHE: That's correct. The status -- for
6 example, the logic trip light, the unit trip lights -- the
7 unit has trip lights and lamps on them. There is a list for
8 each of the five units of such lights. Supposedly these
9 lights were in the somewhat as-found condition. The
10 question has come up, as found by who, and, if so, how did
11 they record it? I was just wondering, would you like to
12 comment on that?

13 MR. TEMPS: Let's see. I'm thinking back now. On
14 the Gulf inverter it looked like one of those lights was
15 burned, and I remember going to the system engineer after
16 they had buttoned the system back up. I said, is that a
17 problem with that light being out? He goes, it's really not
18 out; it's just very dim. He put in a work request to get
19 that fixed, or a troubleshooting work request, whatever.

20 I seem to recall as I left there was an individual
21 down there that, now that we mention it, was writing down, I
22 believe that particular comment, so maybe there was someone.
23 Again, I left soon after it was energized to get back up to
24 the control room, but I think someone was writing down the
25 particular note on that light being out, that that would be



1 something to follow up on for troubleshooting.

2 I don't know what came of that. I seem to
3 remember someone taking some sort of note, but as far as
4 controlling it, as far as, Okay, this light is out; this
5 status is okay, and communicating that formally to someone
6 on a log of some type, I don't recall seeing that being
7 done.

8 MR. ASHE: So as best you understand it, then, or
9 as best you would like to comment on it, that status list of
10 information was most likely generated from someone's memory,
11 and that someone probably can't be identified.

12 MR. TEMPS: That would be my guess. It's the same
13 five team members. Someone there should be able to -- maybe
14 it's a composite from all their memories that was put
15 together. I'm not familiar with the list that we're talking
16 about.

17 MR. ASHE: Prior to this event are you aware of
18 any anomalies that had occurred on any of the five inverters
19 that were lost during the event?

20 MR. TEMPS: Not on those five. Again, I've been
21 at the site over three years, but basically following Unit
22 Two issues for the last two months. The only thing I've
23 ever heard before on inverters were on the safety-related
24 inverters. At one of the morning meetings they were having
25 problems with -- the units have fans that cool the units,



1 and they've had problems with the fan motors, I guess,
2 burning out, and they were talking about procuring safety-
3 related fan motors for replacements. As far as a history of
4 problems with those units, I wasn't familiar with one.

5 From talking with Wayne Schmidt I think he's
6 familiar with some issues, but nothing that I knew
7 firsthand.

8 MR. ASHE: Is there any information that you might
9 would like to record regarding the UPS that we haven't
10 specifically asked for here?

11 MR. TEMPS: I don't think so. I just basically
12 went down and watched them energize the Gulf unit, and I
13 left soon thereafter to get back up to the control room. I
14 knew they weren't going to be able to do anything with the A
15 and B UPS's due to, I guess, possible damage to the one and
16 a problem with a breaker on the other one; they wouldn't be
17 able to get them off the maintenance supply. The rest of
18 the event, you sat there with the annunciator on for A and B
19 being on the maintenance supply.

20 I don't have anything else to add on that aspect.

21 MR. JENSEN: I've got a couple of details I'd like
22 to ask about.

23 MR. TEMPS: Okay.

24 MR. JENSEN: When you were back in the control
25 room, recording times in your notes, what were you looking



1 at to get the time? I understand the clock was out.

2 MR. TEMPS: There's a -- I guess it's a battery-
3 powered clock in the back of the control room, right above
4 the glass for the SSS's office. I was taking my times off
5 that.

6 MR. JENSEN: Was that clock visible to the
7 operators in the control room?

8 MR. TEMPS: If you're on the floor, all you've got
9 to do is turn around, and it's up there, as I remember it.

10 MR. JENSEN: So everybody's notes should have the
11 same common base, as far as time?

12 MR. TEMPS: If that's what they were using, yes.

13 [Laughter.]

14 MR. JENSEN: Okay.

15 MR. TEMPS: I'm sure they were, since the big
16 digital clock wasn't working.

17 MR. JENSEN: About how many people were in the
18 control room at different times? What was the maximum
19 number of people that you saw there?

20 MR. TEMPS: When I walked in initially -- and,
21 again, it fluctuated throughout the event -- my first
22 impression was that there were quite a few people there.
23 Part of the assessment was to see who was there and what
24 they were doing. I recall there were maybe eight to ten
25 people at the panels, reactor operators; the SSS and his



1 assistant; the two phone talkers. I know Jerry Helker, the
2 ops superintendent, was there, walking the floor. And there
3 were other people that were just standing back in the SS's
4 office or behind the chained area, maybe five to ten other
5 people just there to watch or to assist -- probably a lot of
6 your non-licensed operators. I know, looking in the back of
7 the room, back where the work control center is in the back
8 and the PNID area, I remember seeing maybe five to ten
9 people back there; they were probably I&C technicians and
10 what have you. So there were probably at least 30 people --
11 probably around 30 people in there when I walked in.

12 MR. JENSEN: As far as the visibility of the
13 boards by the shift supervisor, were they being obstructed,
14 do you think, by the number of people there, or was there
15 free access?

16 MR. TEMPS: No, I think they had free access. The
17 people that were at the boards were the ones that were doing
18 specific functions. Everyone else, including me, basically
19 stood back and observed what was going on. Basically, you
20 catch their attention when you can; if they're between a
21 task, stop and talk to them, go up and talk with the SSS. A
22 lot of my initial contacts were just with Jerry Helker,
23 since he was basically in a supervisory role himself, to get
24 some of the details as far as what had happened initially.

25 MR. JENSEN: So you were in the control room,



1 then, until you went down to see the UPS?

2 MR. TEMPS: Right. I stayed up in the control
3 room until that evolution, and then I came back up to the
4 control room.

5 MR. JENSEN: About what time did you go down?

6 MR. TEMPS: I think it was between 10 and 11. I
7 don't know the exact time.

8 MR. JENSEN: Do you have an estimate of when it
9 was you came back?

10 MR. TEMPS: Pardon?

11 MR. JENSEN: Can you estimate when it was that you
12 came back again from the UPS -- back to the control room?

13 MR. TEMPS: Just before noon; that's all I know
14 for sure. I stopped taking time readings after about 7:30,
15 so everything was just blending in at that point: answering
16 questions from the region, status of RHR and other systems,
17 questions on the inverters. That's why I went down to watch
18 what they were doing, relay back to the region if they had
19 any further concerns as far as how that was being
20 controlled.

21 I made the assessment myself that it appeared to
22 be controlled in an adequate manner, considering the
23 condition they were in.

24 MR. JENSEN: Besides the difficulties they were
25 having with the condensate 84 valves, they reported some



1 difficulties with some of the other systems: the RHR, the
2 reactor water cleanup, and the RCIC. Can you recall any
3 particular problems they were having?

4 MR. TEMPS: On the RCIC, I remember hearing the
5 report that there was a question as to the indication on --
6 I believe it's the discharge check valve; that it was
7 indicating open. I remember talking with Deet Willis, I
8 believe is his name. He said they had had a history of
9 problems with that valve, or those valves, with the limit
10 switch settings. He went out with a damage team and
11 physically verified that the valve was in fact shut and that
12 it was really just an indication problem.

13 MR. JENSEN: Was that during the first time you
14 were in the control room?

15 MR. TEMPS: This would have been late morning,
16 possibly early afternoon.

17 MR. JENSEN: After you went to see the UPS?

18 MR. TEMPS: I think that was after I went to see
19 the UPS.

20 That was really a non-problem. They satisfied
21 themselves that the valve in fact was shut physically.

22 The problem with the reactor water cleanup: I
23 just remember that, during the event, I could see that they
24 were planning to put cleanup in service, and they had one of
25 their best CSOs on the panel with the procedure, working to



1 get the cleanup in service. I remember standing back behind
2 the SSS at the point where they were ready to put it on
3 line. They seemed to be having some problem at that point.
4 They have some timers that activate at some point when they
5 put the system in service. They call them the delta timers
6 that time out; I believe when that times out the system
7 isolates on you if you haven't met certain conditions to
8 start up the system. I could see they were having problems,
9 because they said the timers are timing out.

10 I'm not sure of the details of what problem they
11 were having, but the system did end up isolating on them, so
12 they informed the SSS that it had isolated, and a decision
13 was made at that time just to leave it alone; they would
14 wait until they were shut down completely and cooled down
15 before trying to re-establish that system.

16 I'm not even sure why they were trying to put
17 cleanup in service at that time, other than for chemistry
18 reasons. It really had no bearing on continuing with the
19 cool-down or getting shutdown cooling in service.
20 Basically, they had to make another ESF, make a phone call
21 on that one because it's an ESF actuation. So that's a
22 separate LER, a separate issue.

23 MR. JENSEN: What about shutdown cooling? Did you
24 note any problems with that one?

25 MR. TEMPS: Shutdown cooling: The first thing



1 they had to do was, that uses their RHR system, and they had
2 tagged out -- I believe it was Division 2 -- early on the
3 midnight shift to support a divisional outage on that
4 system. They hadn't done any work yet, so the first thing
5 was to administratively clear out the tags that were hanging
6 on that system, so that they could operate the components
7 when they were ready to go into shutdown cooling.

8 They had a reactor operator, licensed individual,
9 assigned to get that system ready to support shutdown
10 cooling, and I could see he was working with the procedure.
11 It's a rather lengthy procedure to align the system. I
12 guess there are flushes you have to do, valves you have to
13 reposition. At one point you have to warm the system up for
14 quite a while before you can actually put it in service. He
15 appeared to be following the evolutions there.

16 I know at the point where they conduct the
17 flushes, or where they're warming up the system, he
18 communicated quite a bit with the individual who was
19 controlling feed and watching water level to communicate,
20 you know, watch your level, what we're doing, so that you
21 don't get any sudden decreases. They appeared to be
22 coordinating that pretty well.

23 I do remember that a report came up from people in
24 the field that they had heard pipes banging down in -- I
25 guess it must have been in the reactor building that they



1 had heard some pipes banging from water hammer. That was
2 discussed with the ROs, and I believe it was even discussed
3 with the SSS. It was mainly attributed to the fact that,
4 when you're flushing the system or warming it up by
5 diverting water to rad waste-- they were still well above
6 350 degrees at that time -- you're going get flashing in
7 that line, a steam-water mixture going to rad waste. They
8 appeared comfortable with proceeding with that part of the
9 procedure.

10 As far as any other problems, beyond the water
11 hammer, I'm not aware.

12 MR. JENSEN: What about the mechanical vacuum
13 pumps on the condenser? Were you aware of any problems they
14 had establishing?

15 MR. TEMPS: The only discussions I remember for
16 maintaining vacuum was, they wanted to get the aux boilers
17 started up as soon as possible to provide sealing steam for
18 the hoppers, they call them. I remember they got the aux
19 boilers going. I remember something about one of the aux
20 boilers tripping, but they still had the other aux boiler
21 available, and there was some discussion that that really
22 wasn't the preferable unit to use. There are certain
23 chemicals that you have to put in these boilers for
24 chemistry control, and I don't believe they were able to
25 sample that boiler to see what was going on with its



1 chemistry.

2 They did have the aux boiler supply that steam. I
3 don't recall hearing anything on the mechanical pumps
4 themselves, any problems.

5 MR. JENSEN: I believe that you mentioned that,
6 when you first came to the control room, you noted they had
7 condenser vacuum. Do you know how they were maintaining
8 condenser vacuum before they got the hoppers going?

9 MR. TEMPS: No.

10 MR. JENSEN: Was there any discussion about
11 monitoring the hoppers' output? I believe it goes up the
12 stack.

13 MR. TEMPS: I didn't hear anything on that.

14 I just add it's my presumption that they had
15 vacuum by virtue of the fact that the bypass valves were
16 still available to dump steam to the condenser. If you
17 didn't have vacuum, you wouldn't have those. The circ water
18 system was still operating, so that alone would probably
19 help you to maintain vacuum for quite a while.

20 MR. JENSEN: Okay.

21 Anything, Frank?

22 MR. ASHE: No.

23 MR. JENSEN: I guess we're supposed to ask one
24 last, general question. Did you see anybody doing anything
25 exceptionally good or exceptionally poor or anything else of



1 note that you would like to bring up?

2 MR. TEMPS: I don't know that I saw anything being
3 done poor. I'd say basically the operators did a good job
4 of maintaining the atmosphere in a professional manner.
5 There appeared to be good command and control. They were
6 enforcing repeat-backs of information and orders. Overall,
7 it was just very well controlled, I'd say. After the first
8 hour, it was pretty low-key, really, as far as just
9 continuing on with a normal shutdown and cool-down of the
10 plant, and, of course, pursuing the other issues with the
11 inverters and other little anomalies that came up as they
12 shut down. But they all seemed to be handled pretty well.

13 MR. JENSEN: Frank?

14 MR. ASHE: I don't have any additional questions.

15 MR. JENSEN: That's the end of the interview,
16 then. Thank you, Rob.

17 [Whereupon, at 11:20 a.m., the taking of the
18 interview was concluded.]

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REPORTER'S CERTIFICATE

This is to certify that the attached proceedings before the United States Nuclear Regulatory Commission


in the matter of:

NAME OF PROCEEDING: Interview of Rob Temps

DOCKET NUMBER:

PLACE OF PROCEEDING: Scriba, New York

were held as herein appears, and that this is the original transcript thereof for the file of the United States Nuclear Regulatory Commission taken by me and thereafter reduced to typewriting by me or under the direction of the court reporting company, and that the transcript is a true and accurate record of the foregoing proceedings.



MARK HANDY
Official Reporter
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